

The EMA Guide to Envelopes & Mailing



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Forward – The EMA Guide to Envelopes & Mailing

The envelope is only a folded piece of paper yet it is an important part of our national communications system. The power of the envelope is the power to touch someone else in a very personal way. The envelope has been used to convey important messages of national interest or just to say “hello.” It may contain a greeting card sent to a friend or relative, a bill or other important notice. The envelope never bothers you during the dinner hour nor does it shout at you in the middle of a television program.

The envelope is a silent messenger – a very personal way to tell someone you care or get them interested in your product or service. Many people purchase envelopes over the counter and have never stopped to think about everything that goes into the production of an envelope. Hopefully, this guide will give you a better appreciation for the silent messenger. In the pages that follow you will be provided with an understanding of the parts of the envelope, common types of envelopes, the materials that make up an envelope and how they are printed. We will then give you some helpful information on working with an envelope manufacturer and conclude with a basic postal guide.

So, welcome to the school of the envelope, a journey through the life of that silent messenger you use every business day. We hope you enjoy your journey.

I. A Brief History of the Envelope

The envelope is an essential form of communication that has been used throughout history. Biblical references to messages being sent in closed containers or under seal can be found in various books of the Bible. The modern envelope was created in 17th century Europe as a means to ensure that communications between merchants and nobles were kept confidential. Postage at that time was so costly that only the wealthiest could afford to use an envelope.

An Act of the British Parliament of 1840 created the model for most modern postal systems. That act also created penny postage and the first prepaid "postal wrapper" which was an envelope. These early Mulready Envelopes were used as messages themselves, but within months, citizens were sending a message in the envelope and using the prepaid wrapper as an envelope.

Envelopes in America were first produced in the mid 1840s, mostly by hand. An envelope blank was cut out using a template and a shoemaker's knife. The cut blank was then gummed, except for the seal flap. When the finished envelope was sold, the user was directed to use sealing wax or a wafer seal. As envelopes came into more common usage in the 1850s, hand-folded envelopes gave way to machine made envelopes. The early envelope folding machines were little better than hand folding, except more productive. A good machine operator could make 150 envelopes in an hour.

As America grew, the demand for envelopes grew. During the American Civil War, both the North and South had postal systems. However, many of the envelopes used in the South were actually made in the North or imported from England. As the war continued, the South faced a critical shortage of paper and envelopes were made from wallpaper, flyleaves of books, newspapers, train schedules or anything that was handy. The same envelope style was used in the North and the South.

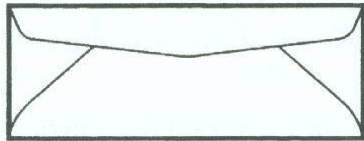
America grew in the 1870s and so did the post and the quantity of envelopes consumed. In the 1890s, less than 25 million envelopes were consumed; by the 1920s, over 60 million envelopes were consumed; and by the 1950s, envelope production started to move into the billions. Today, well over 185 billion envelopes are produced each year with more than 85 percent being delivered by the Postal Service.

II. An Introduction to the Envelope

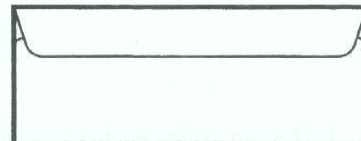
An envelope is a simple device – just a folded piece of paper. You can tell a great deal about an envelope by looking at the way it is folded. Just take an envelope you have just received or remove one from your desk drawer. Pull it apart carefully. You will notice that it tears. That is the gumming on the envelope. An envelope is gummed in three places. The first two are the side flaps and the final place is the seal flap. If you look at the diagram below you will see each of these flaps shown.

Business flap styles

Another envelope which meets the special needs of printers is the **Fullback Style**. This clean design is ideal for envelopes that will be printed across the entire back with photography or other graphics.

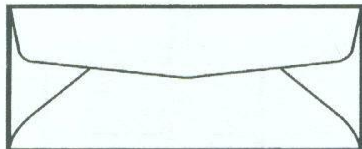


Make Ready Saver

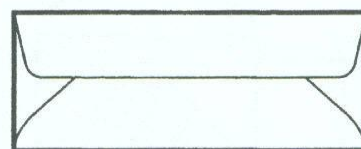


Fullback Style

If an envelope will be used for bulky mailings, then a very generous flap is in order. The **Bankers Flap** is like a Make Ready except deeper and the **Wallet Flap** is a deeper version of the Fullback Style.

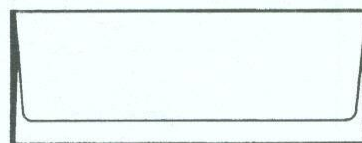


Bankers Flap



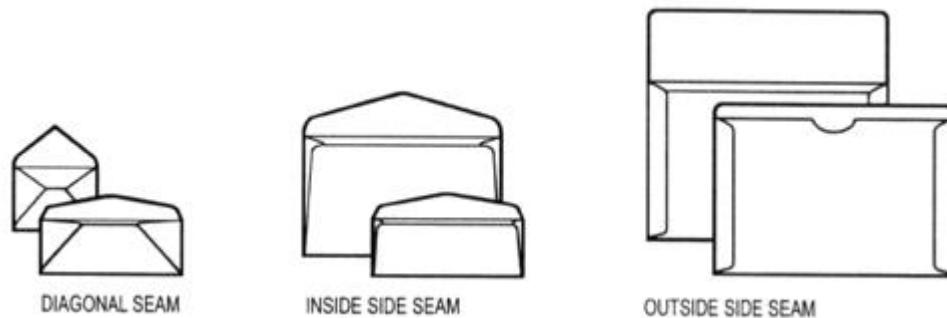
Wallet Flap

Deepest of all is the **Remittance Style** which is like a Wallet Flap, except that it extends almost to the bottom of the envelope. This style is actually not for bulky mailings. It is designed to be printed with remittance information and perforated, so that the flap can be torn off and inserted into the envelope before mailing.

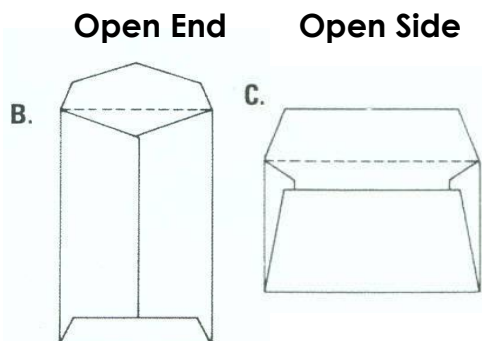


Remittance Style

Now, pick up another envelope and look at it. Is it the same type as you saw before? There are many different types of envelopes, but basically, only two major styles – the diagonal seam envelope and the side seam envelope. There are many variations on each style, but these are the primary two different styles. A diagonal seam envelope is just as it says; the seams are cut on a diagonal. These envelopes are usually cut from a die press and then the envelope blanks are placed on a folding machine where they are folded and gummed. The second major style, the side seam envelope is more often than not created through a web of paper feeding through a die cutting unit mounted on a folding machine. However, there are always exceptions to the rule and there are diagonal seam envelopes produced on a machine as part of a continuous process and side seam envelopes produced on a die press. However, we do not want to confuse you at this point so let's just keep it simple.



There are also two primary types of envelopes, as the diagram shows below. The first type is an open side envelope where the longest side or top of the envelope has the seal flap and is where you put something in the envelope. The second type of envelope is the open-end envelope where the side of the envelope is open. We know this gets a little confusing, but trust us, it makes sense after a short time.

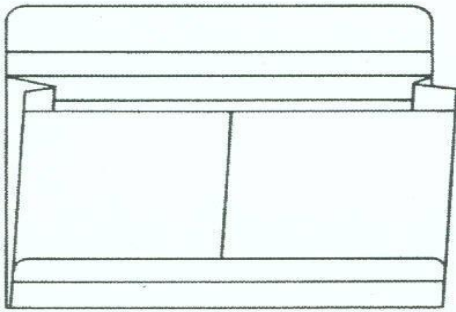


Envelopes are always measured width first then length. So, a 6" x 9" envelope would be six inches wide and nine inches long. Envelope manufacturers also refer to the width of the envelope as the end and the length of the envelope as the side. This is an easier way to differentiate between open side envelopes and open end. The industry standard #10 envelope is usually an open side envelope. Standard 9" x 12" flat is usually an open-end envelope. Remember, there are many exceptions when it comes to envelopes because we are custom designing envelopes based on a customer's needs.

There are also envelopes that can get very large. They are called expansion envelopes. These are measured using three dimensions – width x length x expansion. The expansion part of the envelope is called a gusset, but expansion is also understood.

Remember that the gusset or expansion is NOT part of the length of the envelope, it is a separate measure. Shown on the following page is a common expansion envelope:

EXPANSION ENVELOPE: envelope with a gusset or box bottom and sides, allowing it to expand for bulky mailings. ▼



Now that you have mastered the basics, it is time to learn more about the various types of envelope styles. It is important to keep in mind that many envelopes are custom developed so they can be any shape or size – they can even be circular. The only criterion that must be followed is that the Postal Service must accept the envelope for mailing. If you are paying First-Class full rate postage, usually the Postal Service will accept your mailpiece as long as it meets their minimum requirements. However, you could pay more for an odd-sized mailpiece. So, before you decide on mailing a large

quantity of envelopes, it is always a good idea to check with your local post office to see if what you want to mail is acceptable to them. They are always happy to give you advice. Your envelope manufacturer can also help you as they frequently are in contact with the Postal Service. Don't be afraid to ask; someone is always there to help.

III. Standard Sizes of Envelopes - How the Sizes Came About

Did you every wonder where a #10 envelope got its name? William Irwin Martin of Samuel Raynor & Company in New York City developed the first listing of envelope sizes and types for the Stationers' Handbook of 1876. As machine manufactured envelopes became popular after the Civil War, it became necessary to categorize the various sizes and shapes of envelopes. Martin developed these sizes in accordance with the various die sizes that were available for use in the industry at that time. These sizes have become a quick reference system for envelope manufacturers to reference die sizes and to explain sizing to their customers. Much of Martin's system is no longer used because more envelopes are custom made today. However, some sizes are still in use today. Here is Martin's list:

Business Sizes

Number	Designation	Size in Inches
6 ¼	Business Envelope Small	3 ½ x 6
6 ½	Business Envelope – Med	3 ½ x 6 ¼
6 ¾	Business Envelope – Med	3 5/8 x 6 ½
7	#7	3 ¾ x 6 ¾
7 ¾	# 7 ¾	3 7/8 x 7 ½
9	#9	3 7/8 x 8 7/8
10	#10	4 1/8 x 9 ½
11	#11	4 ½ x 10 3/8
12	#12	4 ¾ x 11
14	#14	5 x 11 ½

You may have difficulty in finding all of these sizes in a stationery shop or office products store. However, they can be special ordered in a short period of time. Several envelope companies keep a wide variety of stock on hand at all times and normally service printers, office products establishments or stationery stores do also.

Remittance Envelopes

Remittance envelopes are popular for use to collect payments. Churches, charities and business of all types use these envelopes for billing and receipt of payment. Below are the common designations of remittance envelopes:

Size	Dimensions
6 ¼	3 ½ x 6
6 ½	3 ½ x 6 ¼
6 ¾	3 5/8 x 6 ½
9	3 7/8 x 8 7/8

International Sizes

The sizing system presented above was unique to the United States and was derived from our inch system of measurement. Most other countries use the metric system of sizing envelopes, which can be found on the following page.

	Millimeters	Millimeters	Inches	Inches
Number	Height	Width	Height	Width
C7	81	114	3.19	4.49
C7/6	81	162	3.19	6.38
DL	110	220	4.33	8.66
C6	114	162	4.49	6.38
B6	125	176	4.92	6.93
1/2BC4	125	324	4.92	12.75
E6	140	200	5.51	7.87
C5	162	229	6.38	9.02
B5	176	250	6.93	9.84
E5	200	280	7.87	11.02
C4	229	324	9.02	12.75
B4	250	353	9.84	13.09
E4	280	400	11.02	15.75

Specific Differences in the United Kingdom

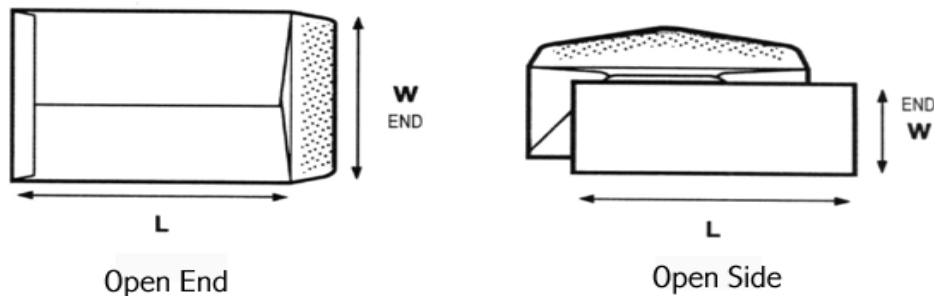
Standards in the United Kingdom (British standard 4264 gives positions for C6 and DL sizes only). They are:

- DL Banker window size 39 mm x 93 mm positioned 20 mm in from the left edge of face and 18 mm up from the bottom.
- * DL pocket is exactly as above.
- * C6 window size 39 mm x 93 mm positioned 20 mm in from the left and 20 mm up.
- * No standard is quoted for C5 or C4.

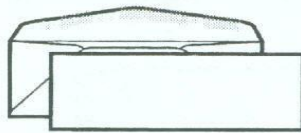
You need to be aware that it is common practice, particularly in the United Kingdom, for end users to specify oversize C5 envelopes for machine insertion.

Envelope Styles/Western Envelopes

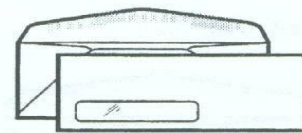
Now, on to the various styles of envelopes, remember when we talked about open side versus open end? We are going to segregate our styles by these two types of envelopes. So, let's review the open side envelopes first because you may be using those most often.



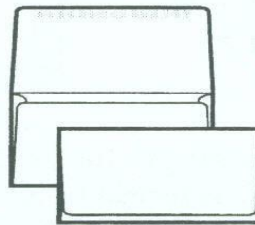
Popular open side styles



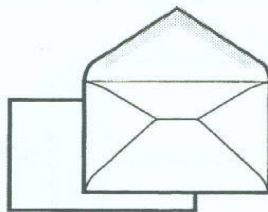
Business Style



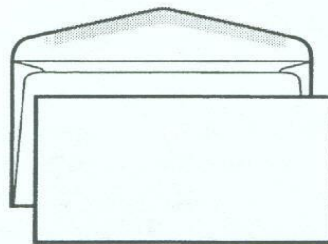
Window



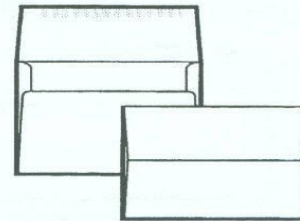
Remittance Style



Baronial Style



Booklet Style

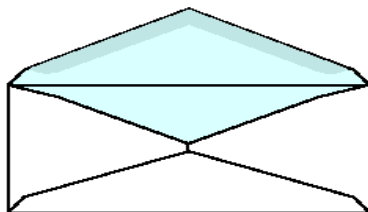


Announcement Style

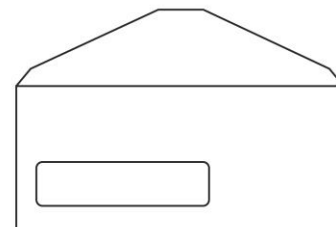
Business Style Envelopes

Business style envelopes usually have a numerical designation. These are the envelopes you would use for a business letter, a bill or other formal type of correspondence. The diagram shown above illustrates the style for #10, #9 and 6³/₄" business style envelopes. Please keep in mind that these can be either diagonal or side seam varieties.

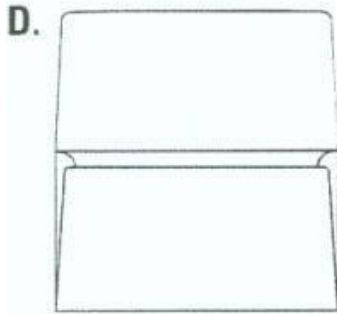
The Executive style of envelope is another of the special styles that are extremely versatile. The example below shows both the regular and window style of the Executive envelope.



**Executive Style®
Diagonal Seam**



Remittance Envelopes

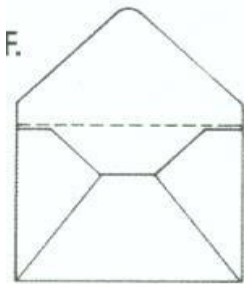


The #9 envelope shown above is frequently used for a remittance envelope, as well as the 6¾" size envelope. Frequently, the envelope you receive to send back your oil company payment is a 6¾" remittance style envelope either with an open or "closed window" meaning the window is patched with window film. Also commonly used is an inside side seam remittance envelope of 6¾" length. This style of envelope, shown on the left, is frequently used when you want a tear-off remittance document that comes attached to the envelope. These are commonly used by businesses that do not have a formalized invoice printing system, but want the ease of customer convenience in

providing a handy remittance document with the envelope.

Social Styles

The social styles are among the oldest styles of envelopes that an envelope manufacturer can fabricate. These styles have been in use for almost as long as envelopes have been used. If you have ever received a wedding invitation or birthday card, chances are it was mailed in a social style envelope. There are three primary social styles of envelopes. The first is a baronial style side seam envelope. These are often used with wedding invitations. If you were writing a thank you note or for an informal party, you might want to use an announcement envelope (see example under popular open side styles). The announcement envelope is normally a side seam envelope and is also an open side envelope rather than an open end envelope. In fact, you will find that most social envelopes are open side rather than open end. Why? Just custom.



Some social events require a larger envelope, so envelope manufacturers offer a booklet style envelope in both side seam and diagonal seam varieties. Remember, if it is a social style of envelope, it is always an open side envelope. If you were mailing a Bar or Bat Mitzvah announcement you would probably use a larger open side envelope as shown to the left.

We will talk more about the types of paper you might want to use later but for right now, it is important that you concentrate on the styles rather than the materials.

Mailing Envelopes

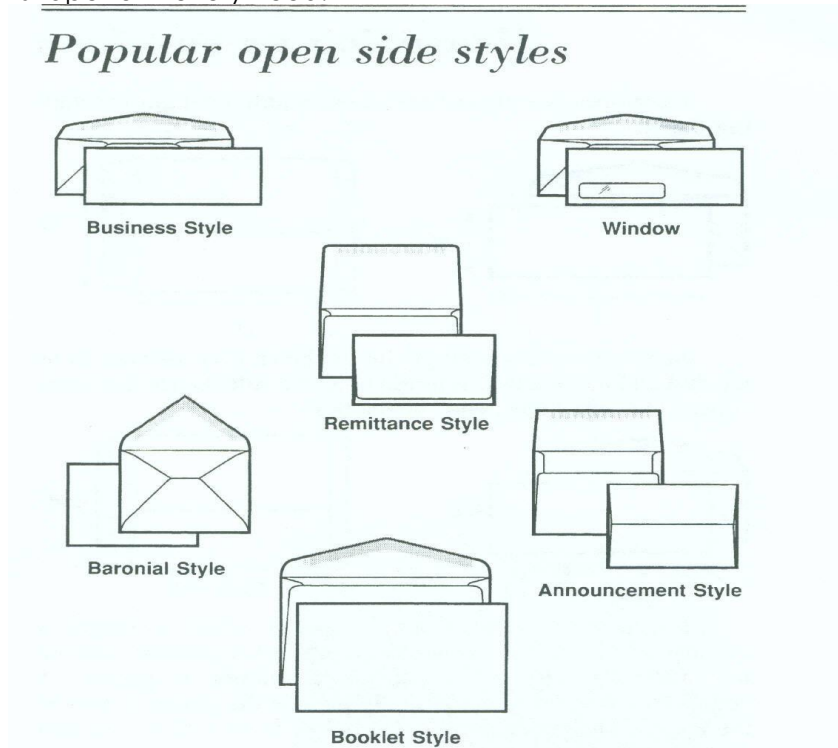
There is no such thing as a standard mailing envelope. Most mailing envelopes are custom constructed to the needs of the customer. A number of popular sizes were presented earlier. For example, the 6¾, #9, #10 and 6 x 9 are all frequently used for mailing. In addition, a booklet or 6 x 9 open end or side, either in diagonal or side seam is frequently used in mailing.

Envelopes are often used as part of a postage saving strategy. For example, the 6 x 9 booklet size just referenced is frequently used as a container for newsletters printed on 8 ½ x 11 stock and folded in half. In this manner, a newsletter could be sent at a lower cost letter

mail rate rather than a higher cost flat rate. The postage savings alone more than covers the cost of the envelope.

Envelopes used for mailings are often used to send an object rather than a piece of paper, so envelope manufacturers make a wide variety of open end or open size mailing envelopes. Some envelopes are expandable and some are closely fitted to the contents being mailed. It is always a good idea to discuss with your envelope manufacturer what you are going to mail before ordering your envelopes. Your envelope sales representative can help you select the best envelope to fit your needs.

The picture shown on the following page presents a wide variety of mailing envelopes. Remember, many mailing envelopes are custom developed so there is no one single best size or shape to fit every need.



Below are examples of open end envelopes. The larger open end envelopes may be made from a variety of materials such as: white wove, brown kraft, and bond. They may also have several closure options such as: string and button, clasp, and self-seal.



IV. Envelope Construction, Seams and Flaps

There are two areas of an envelope that always require a great deal of thought: the type of seam you are going to use and the type of flap. One would think this would be a very simple decision, but wait until you go through the choices below:

1. Seam Construction

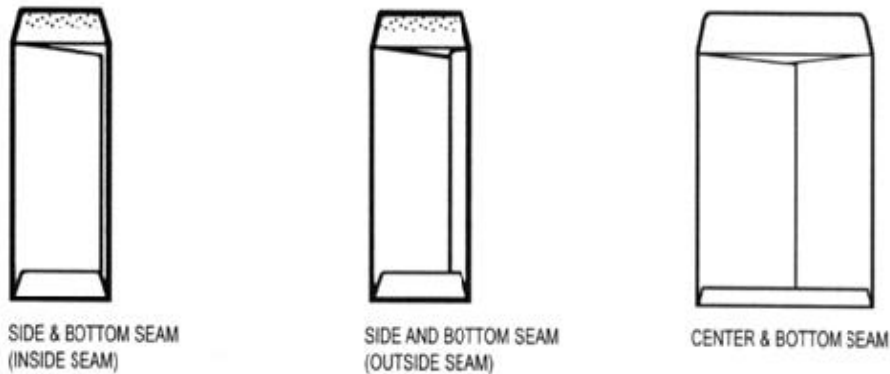
The seam of the envelope is the point where the envelope is gummed together. Envelope manufacturers recognize two basic categories of seams: welded and closed.

A welded seam envelope is simply a piece of paper that has been folded in half and glued shut in two sizes. You can find welded seams in envelopes folded into magazines or in Sunday supplements in newspapers. These envelopes are usually part of an order form. Some envelopes with welded seams are made out of plastic. The problem with welded seams is that they are not very strong and they are limited in use. For example, a sheet of paper cannot be inserted the full length of a welded seam envelope because the front is glued directly to the back along each side. Some inexpensive folder gummers produce a welded seam envelope that is part of a business form. Again, these types of products are very limited in their message carrying ability and in their use. Most envelope companies do not offer welded seam envelopes for this reason.

Most envelopes today use a closed seam construction. These envelopes have at least three folds and two overlapping edges, with seam gumming confined to the overlapping areas. The entire inside of a closed seam envelope is available for insertion. Closed seam envelopes are the strongest form of seam construction and they are also the form least susceptible to breaking or popping during mail processing. That is why most envelope inserting machine specifications emphasize the importance of using a closed seam construction envelope.

Closed seam envelopes come in many different shapes and styles as presented earlier in this guide. The choice of style is really dependent on the mailing application and an individual customer's taste. However, if you are planning to insert the envelopes you are buying, you need to consult with your envelope sales representative who will advise you concerning the best shape and style to be used in a given mechanical inserting system. Envelope companies go to great lengths to train their sales representatives in the basics of most mechanical inserting systems. In fact, you will find the guidelines for envelope inserting for the three most common mechanical inserting equipment manufacturers at the end of this book.

Mechanical insertion automates the process of stuffing envelopes. The three most commonly used inserting machines have guidelines for envelope construction that have been prepared jointly by the manufacturer of the equipment and the Envelope Manufacturers Association. Some inserters are very versatile and flexible and can accommodate many styles and shapes of envelopes. Other inserting systems require envelopes of exacting specifications and only support certain styles of envelopes. It is always important to find out the type of inserter your mailing house or mailing solutions provider is using. Furnish information to your envelope sales representative so you can be provided with the best envelope style for your needs.



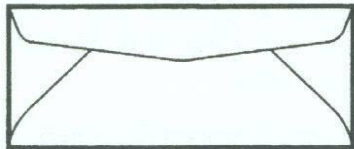
2. The “Flap” About Flaps

Envelope flaps come in many different sizes and shapes and each size and shape performs a different function. Flaps are the least standardized part of envelope construction, regardless of the style or shape of the envelope. This is true for open side and open end envelopes, but is most evident in business envelopes. With business envelopes the flap design can be influenced by several factors, including the manufacturing process, the needs of the printer, the bulk of the mailing and the type of sealing gum/adhesive. Envelopes produced on very high speed V-Flap machines result in an envelope that is folded together like a diaper, with a **Monarch Style** (or Executive) flap meaning the flap has a pointed tip. Another flap frequently used is the **Sealock** style – a good all-purpose design with broad appeal. Envelopes can be custom made from an adjustable die that results in a perfectly horizontal envelope with no rounded corners. Printers may request a **Make Ready Saver** (or MRS) flap that is like the Sealock with a deeper flap that provides a level surface when printing in the return address area. This flap also has broad appeal and its slightly more generous width is a convenient feature.

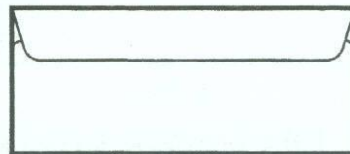
There are other flap styles that can meet the special needs of the printers, such as the **Fullback Style**, the **Bankers Flap**, the **Wallet Flap** and the **Remittance Style**. The Fullback Style has a clean design excellent for envelopes that will be printed across the entire back with photography or graphics. The Bankers Flap is like the Make Ready Saver, but deeper; and the Wallet Flap is a deeper version of the Fullback Style. The Remittance Style is like the Wallet Flap and is the deepest of all, extending almost to the bottom of the envelope. This style is not for bulky mailings, but is designed to be printed with remittance information and is perforated so the flap can be torn off and inserted into the envelope before mailing. Companies that expect return payments may use this type for invoicing customers.

Business flap styles

Another envelope which meets the special needs of printers is the **Fullback Style**. This clean design is ideal for envelopes that will be printed across the entire back with photography or other graphics.

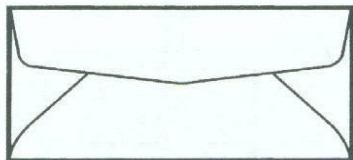


Make Ready Saver

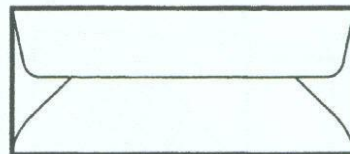


Fullback Style

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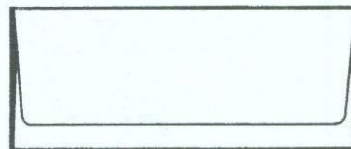


Bankers Flap



Wallet Flap

Deepest of all is the **Remittance Style** which is like a Wallet Flap, except that it extends almost to the bottom of the envelope. This style is actually not for bulky mailings. It is designed to be printed with remittance information and perforated, so that the flap can be torn off and inserted into the envelope before mailing.



Remittance Style

V. Selecting the Right Materials

Envelopes are constructed in a wide variety of materials and in many different styles. It is important to keep in mind that even though there are standard styles of envelopes as outlined previously, your envelope manufacturer is equipped to provide you with any type of product you can envision. If you are planning a mailing for marketing purposes, the more unique your envelope the better your product will stand out.

This chapter deals with many of the common materials used in envelopes and their properties and use. This chapter is not designed to be an all-encompassing examination of envelope materials, but will provide you enough information to make the right choices in materials for your specific needs. Each section below is divided into major material components. There are also some handy tables to help you better understand the materials that are available.

1. Selecting the Right Paper

Some of the important paper properties include basis weight, brightness, opacity, two-sidedness, bulk, density, formation and grain direction. The importance of knowing what these terms mean will greatly impact your completed project.

One very important property is basis weight, the weight in pounds of 500 sheets of paper at the paper's basic size. Basic size is a standard predetermined size for a particular type of paper that is used to establish the basis weight of a ream (500 sheets) of a given grade. Each type of paper has its own standard size sheet, which is used for the calculation. Most copy paper is identified as 20 lb. because copy paper is cut from sheets that are 17 x 22 and weighs 20 pounds when placed in a stack of 500 sheets. Instead of 20 lb., the term sub 20 may be used. Sub weight (short for substance weight) means the same thing as weight; however, the term is used for paper grades with a 17 x 22 sheet size, such as bond, wove and kraft.

Brightness is the measure of paper's ability to reflect light, which is rated on a scale from 0-100. The purpose of paper is to reflect light allowing ink to absorb specific light waves. Paper affects the color the eye perceives because all paper absorbs some light and factors such as shade and gloss affect how brightness is assessed. Whiteness depends on how evenly the colors in the visible spectrum are reflected. If more blue than red and yellow is reflected, a cool tinge and brighter appearance results. When printing blues and blacks, cool white tends to brighten colors. In printing reds and yellows, a warm white sheet makes color appear clearer and stronger.

Neutral balanced sheets will reflect all colors equally and result in accurate color reproduction. Brightness is increased by adding bleach, optical brighteners, fillers and fluorescent dyes.

Opacity is very important to the final appearance of the project. Opacity is the degree to which light shows through the paper from the backside. In other words, it's the property of the paper that obstructs light and prevents print on one side from showing through on the other. Paper opacity is rated from 1-100. The higher the rating, the more opaque the sheet. When considering opacity, remember thick is more opaque than thin, rough is more opaque than smooth, coated paper is more

opaque than uncoated, dark is more opaque than light, and groundwood is more opaque than freesheet.

Groundwood paper contains more than 10 percent mechanical pulp, which is grinding wood for pulp, as opposed to using a chemical process. Freesheet contains no more than 10 percent mechanical wood pulp. Opacity is increased by adding fillers, increasing basis weight or adding pigments/dyes.

Two-sidedness refers to the differences between the felt and wire sides of paper. The wire side is the stronger side, less susceptible to cracking, has greater pick resistance (surface strength) and less dusting/linting. The wire side of paper is the side that is in contact with the Fourdrinier wire during web formation. The felt side is smoother and preferred for fine printing and pen and ink application. The felt side is the side not in contact with the Fourdrinier during web formation.

Bulk (caliper) is the thickness of sheets of paper under a specified pressure. Density is the weight of a sheet of paper as compared to its bulk. The higher the density of the sheet, the more compact the fibers. This makes the paper thinner, but heavier.

Formation is the distribution of fibers and filler in a sheet of paper. Uniform distribution of the fibers reflects the quality of the paper. A way to see this is to backlight a sheet of paper and where blotches appear indicates the areas where the fibers are denser. This is referred to as mottle. The light areas indicate less fiber and more filler. The dense areas inhibit ink absorption. The lighter areas being more open will absorb more ink causing greater dot gain. This kind of inconsistency of dot gain is really impossible to compensate for and the result is often a printed image that is poor in quality.

A sheet that is well formed with good formation promotes good ink holdout, limits dot gain, reduces mottle, enhances the clarity of an image, and accepts heavy ink coverage uniformly. This principle also applies to coated papers. Gloss and dull sheets usually exhibit good formation, while mattes have relatively poor formation. Formation is not used as a criterion to grade or classify paper, so it is up to the end user to observe the differences between good and bad formation. Keep in mind that expensive paper does not always have better formation than less expensive paper.

For envelope manufacturers identifying the grain direction is crucial. Going against the grain when folding during production can result in cracking and curling. Grain direction affects all steps in envelope manufacturing, including feeding, print and binding operations and will, therefore, affect the quality of the envelopes. To test the grain of paper, there are tear and fold tests. Paper tears straighter with the grain than across it and folds more smoothly with the grain, but roughens and cracks when folded across the grain. When paper is folded into envelopes, this aspect of paper becomes a major issue. The grain should run the long way on an open end envelope, the short way on an open side booklet envelope, and diagonally on an open side diagonal seam envelope. This will not only help in the folding process, but will also reduce curl when adhesives are applied to the envelope.

Paper strength is another factor to keep in mind when producing envelopes. Strength is determined more by the nature and distribution of fibers than by the thickness of the paper. Long intermingling fibers create stronger paper than shorter

fibers. For envelopes, tear or tensile strength can be maximized by folding the paper so possible tears would occur across the grain. Fibers with greater tensile strength will produce stronger paper without having to increase weight or thickness. This can result in lower mailing costs for the customer.

Types of Paper

Making an informed choice regarding paper is important for your finished product. There are a number of paper categories, including coated papers, bond/writing, text and cover, offset, newsprint, safety, parchment, Bristol, index, vellum Bristol, pressure sensitive, carbonless, duplex and envelopes.

- Coated paper imparts smoothness and provides a level base for printing on a fiber surface. It also has greater opacity and gloss. Gloss is reflectance from the paper surface and is a way to measure how level the surface is. Coated paper imparts improved ink color and brightness; the way the ink is held on the surface so that light can reflect through it. It further provides water resistance since too much water absorption can distort quality.
- The types of coated papers are: gloss coated that has a shiny surface and a high degree of light reflectance, dull coated that has very little or no gloss but sheen rather than shine, matte coated that is glare-free with an open surface and the least shine of the coated papers, and cast coated that has a highly polished mirror-like surface. Brightness is the only criterion for ranking coated papers.
- Bond paper was originally used in impact printing when a hard surface was needed such as in a typewriter. Writing paper was used for pen and ink when a softer surface was needed. The differences in the two have diminished with new technology, such as the laser printer. Laser compatible paper refers to the paper's performance in laser application, but is not guaranteed by the manufacturer. Laser guaranteed paper is guaranteed by the manufacturer to perform with laser applications.
- Text and cover paper is high quality uncoated paper available in many colors and finishes.
- Offset papers are made for offset printing. These papers have surface strength, resistance to picking and the softening effects of liquids.
- Newsprint papers are made mainly from groundwood pulp for the web printing of newspaper.
- Safety paper is made to protect against alterations.
- Parchment paper is made by sending paper through a sulfuric acid bath to fuse fibers in a uniform mass. There are imitation parchments available as well.
- Index paper is a sub-group of the Bristol category of paper that has a smooth finish, with strength and toughness.

- Vellum Bristol isn't as smooth as index, but provides a more economical stock to use for die-cutting and scoring.
- Pressure sensitive papers have self-adhesive coatings that are covered by backing or release paper.
- Duplex is two sheets of paper stock laminated together.
- Carbonless paper is chemically coated so one or more duplicates can be created at the same time that the original is prepared without the use of carbon sheets between each page.
- Wide assortment of paper containing post-consumer or pre-consumer recycled fiber or both. The type of fiber and percent contribution to the total fiber makeup varies by paper and mill
- Envelopes can incorporate many kinds of paper.

Paper Substitutes

There are paper substitutes that can be stronger than paper. No discussion of paper would be complete without mentioning this category. There are a number of paper substitutes on the market that have various qualities that make them more durable or burst and tear resistant and more moisture resistant than paper.

- Tyvek® is a strong material made from high-density polyethylene fibers. This material is strong, extremely lightweight, flexible, smooth, low linting, opaque, resistant to water, chemicals, abrasion and aging. Tyvek® envelopes may reduce postage costs because of their light weight. Tyvek® envelopes run smoothly and efficiently on envelope insertion and inkjet addressing equipment. The material is less expensive and more versatile than fabrics and can be recycled. DuPont has been recycling it for the past 20 years. Tyvek® is a registered trademark of DuPont.
- Tru-Tech is composed of three different layers of material. The inner and outer layer is paper and the middle layer is a thin film of polypropylene. Tru-Tech provides outstanding opacity and superior burst strength with the advantages of paper.
- Duralite envelopes are made from a super durable lightweight plastic. The outer surface is white with an inner lining that's tinted silver. These are about half the weight of paper and have the ability to stretch to allow for extra-full stuffing.
- YUPO is another high quality environmentally friendly synthetic paper. This is an ultra-smooth synthetic paper made from polypropylene and calcium carbonate. The manufacturing process creates a product that has superior whiteness and opacity. This produces a paper that is extremely durable, dimensionally stable, waterproof, flexible, and chemical and scuff resistant.
- Translucent papers are becoming some of the most popular "naturally" translucent papers in use. Manufactured by Papierfabrik Schoellershammer,

naturally translucent paper such as Glama Natural® is a premium grade of translucent printing paper. Some translucent papers are first manufactured as opaque papers that are chemically made transparent by treatment with petrochemical based resins to make the paper translucent. The chemical process is less environmentally friendly because the paper is not recyclable. The Glama process is considered "natural" because the translucence is obtained by means of a mechanical process rather than chemical process. Claims made by the manufacturer state that the mechanical process achieves a higher level of translucence than chemical methods. This allows for more end users than other translucent papers. The Glama Natural® materials can be converted into envelopes and can be both laser printed and inkjet printed.

- UV/ULTRA® II translucent papers, manufactured by Neenah, allow information to be seen through them but aren't totally clear like acetate. There are three levels of transparency and Neenah has recently added basis weights to their products. Typical applications for this material include flysheets, business cards, announcements, inserts, menus, brochures and annual reports. The papers can be embossed, foil stamped, printed on both sides, and used in 4-color process printing applications. The material produces envelopes that are sturdy, solid, foldable, score-able, printable, and durable. These papers are also eye-catching with lots of colors to choose from. This unique medium could affect direct mail applications in a very positive way.
- EnDURO paper is a slightly different kind of medium. It is a hot-melt laminate: paper – film – paper. The grades vary as some of them are freesheet offset, coated paper, satin-glossy, or a combination of two different paper grades. The middle layer is a polyethylene film. Printing on the EnDURO surface is as easy as printing on paper. EnDURO has been specially designed for envelopes and for specialty protective applications, i.e., CD sleeves, credit card sleeves and pharmaceutical packaging, to name just a few. The EnDURO material is practically untearable once the envelope is closed or sealed. Testing has shown that envelopes made with the EnDURO paper offer the same bond/gum results as high-quality white wove envelope paper plus the protective features. EnDURO is highly recyclable (ISEGA Certificate) and may be recycled with normal paper waste.

Treated and synthetic papers have their own challenges, however, and may require special adhesives. The materials are not as porous as traditional paper and special gums may be needed for seam and seal applications. These materials may not tear as easily, if at all, compared to non-synthetic papers; therefore, achieving a fiber-tearing bond may not be possible.

Creating successful projects requires successfully applying the message to the medium, therefore, it is important to know the nuances of paper and paper substitutes to satisfactorily communicate the desired message and produce a quality envelope.

2. Selecting The Right Window Film

Envelope windows use transparent film to seal out moisture and debris. Window materials must be clear or transparent and securely attached on all edges of the envelope window. They must be stretched tight and be free of wrinkles, streaks,

fogging, colors and other conditions that could obscure the address or barcode during processing.

All address and barcode information, as read through the window, must meet minimum reflectance and contrast guidelines. A print contrast ratio (PCR) equal to or more than 40 percent in the red and green portions of the optical spectrum is needed for an Multiline Optical Character Reader (MLOCR) to recognize address information. A print reflectance difference (PRD) equal to or more than 30 percent in the red and green portions of the optical spectrum is needed for a Barcode Sorter (BCS) to recognize POSTNET barcodes. The Postal Service is testing the new ERM2 (Envelope Reflectance Meters 2) which reads grayscale. It will take the place of the Envelope Reflectance Meters (ERM), which read in the red and green color spectrum. Deployment is pending.

The MLOCR works best if the reflectance of the insert is about the same as that of the envelope. For the greatest contrast and best performance on MLOCRs and BCSs, the print should be black on a white or light background.

The type of window film impacts greatly on the manufacturing process for the envelope and each of the materials has its own specific characteristics. As discussed under the adhesive and paper sections, the adhesive and paper, as well as the window film, each impacts on the quality of the final product.

There are several types of window film available, including cellophane, glassine, polystyrene, polypropylene, polyester, acetate, colored film, and PLA (Polylactic Acid).

Cello or cellophane is an acetate material that is almost completely transparent. Cello is a mark of quality in the envelope field due to its exceptional clarity. But, it is also very expensive and may not be durable enough for many mailing purposes.

Glassine is a vegetable-based material that contains cellulose fibers and no petroleum products. This was the first window patch material ever developed, but it lost popularity for a while due to the somewhat cloudy or hazy appearance compared to cello or poly. However, this characteristic doesn't create glare for the USPS optical readers as some other materials may, so it can be a positive trait for window material. Glassine is environmentally friendly and is the primary window material used on recycled envelopes. Glassine windows make the entire envelope recyclable when the envelope is made from a material that is recyclable. Advances have been made in reducing haze to make the material more user friendly.

No window patch, known as an open panel, would be the most environmentally friendly choice of all.

Polystyrene is a translucent film noted for its superior flexibility and resistance to changes in humidity. This material does not warp or become brittle, therefore, is often specified for use with inserting equipment. Poly, which was already the most popular window patch material in use, got an additional boost when manufacturers devised a cost-effective way to make the poly material in a new super clear version.

Polypropylene film has excellent transparency, but without the dimensional stability of a polystyrene film. It is commonly used as a window patch on envelope equipment when machine speeds are not critical. It's also used for windows on CD envelopes.

Polyester film has superior clarity and is extremely durable. It is commonly used as a window patch for laser printing applications when high heat temperature resistance is required. It is also used for windows on CD envelopes.

Acetate film is a general-purpose film made with cellulose in the form of wood pulp or cotton linters. In the lamination and packaging field acetate film is highly thought of for its inherent air transmission characteristic and resistance to fingerprints, scuffmarks and outstanding clarity. Acetate is a premium film and has a premium price.

Colored film is usually a polystyrene film that has the color compounded into the film itself or is flood coated by a printer. For direct mail pieces, this is a great way to catch the eye of the consumer. Popular colors are red and yellow, but others are available.

PLA or Polylactic Acid is produced from processed corn, a renewable source. This is currently being used in countries outside the United States.

Window position impacts greatly on the design of the envelope. Unfortunately, some mailers consider what goes into the envelope before its design. Often the envelope needed may be part of the manufacturer's stock window envelopes; or with some minor modifications and less cost to the mailer, can be used for the mailing project. Mailers should keep in mind that envelope design should be part of the initial form design for any pieces that will be mailed in a window envelope.

Don't attempt to design the window envelope using a fax or photocopy of your new form. Window positions are specified to the nearest 1/16" and the form can easily shift more than that, based on where it was positioned in the fax or copier. Also, remember the Postal Service will jog the contents of the envelope to the right before attempting to read through the window. Therefore, jog your form to the right, inside your envelope prototype before checking to see if all of the characters on your longest address line are visible through the window. Keep in mind the window must not encroach on the postal barcode clear zone. MLOCR applied barcodes are always printed in the lower right corner of the mailpiece and the barcode clear zone is 4¾" from the right of the envelope and 5/8" from the bottom of the envelope, therefore, the window design must accommodate these areas.

Windows may be placed virtually anywhere on the envelope, but because the patch material must be gummed inside the envelope on four sides, it may save money to keep all windows at least 3/8" from the sides of the envelope and at least ¼" apart for double windows. The envelope equipment functions best for windows that fall within these guidelines and set-up time is kept to a minimum.

Windows can be used as communication devices or teasers that tantalize the customer. They can add additional appeal to a mailpiece and may increase response rates. Creative use of windows can make for a much more interesting mailpiece.

3. Selecting the Right Gum (Adhesive)

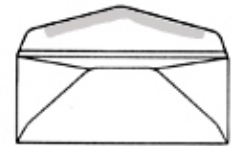
Adhesives play a critical role in the production of good envelopes. Adhesives normally account for 2-3 percent of the materials cost of an envelope, but at most envelope converters, adhesive-related issues are the number one cause for customer returns.

There are a number of basics to consider when dealing with adhesives, including application, substrate to be adhered to, end use requirements, cost, and storage conditions.

The method of application must take into consideration the specific method of application, machines involved in the process, and machine speeds.

Types of Adhesives:

Front seal is the adhesive used to seal the envelope. There are three general front seal adhesives: remoistenable front seal, latex cohesive seal and pressure sensitive seal. Remoistenable front seals reactivate with moisture and are the most common in use today due to their suitability for automatic inserting machines.



Remoistenable Gum

Example:

Required Properties for Front Seal:

A. **Non-curl or lay flat:**

The seal should not curl excessively which is important for both appearance as well as efficient use on automatic inserting, postage and sealing machine.

B. **Adhesion:**

The adhesive should produce a paper-tearing bond on all conventional envelope papers after the seal has been moistened and allowed to dry.

C. **Humidity resistance: (non-block)**

The seal should not be reactivated by normal humidity, temperature and pressure conditions during proper storage and use.

D. **Remoistening speed: (time to fiber tear)**

On automated inserting machines, under normal sealing conditions, the seal adhesive must develop a paper-tearing bond in a short amount of time.

E. **Printing suitability:**

The adhesive must be resistant to degradation and premature activation during post-converting printing processes. In thermographic printing, which uses high temperatures in printing operations, the seal adhesive must not become dry and unreceptive to moisture. Special seal adhesives may be required for these operations.

Moisture can be created inside laser printers by hot fusing rollers, so the seal adhesive must be resistant to premature reactivation due to this moisture. Special seal adhesives may be required for these operations.

F. **Automatic inserting:**

Seal adhesives must perform on automatic inserting equipment.

Typical formulations for remoistenable front seals are blends of two main raw materials: modified corn or potato starch (dextrin) or synthetic resin emulsion (like

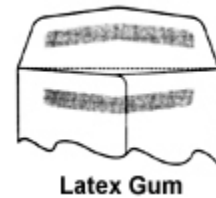
Elmer's® Glue). These raw materials are cooked in water and supplied in liquid form to envelope converters. The adhesive is applied in a thin film, which is then dried. The adhesive is formulated to be reactivated with moisture. The three main types of remoistenable front seals are dextrin seal gum, resin/dextrin blend and resin seal gum. The resin/dextrin blend is most often used today.

Latex Cohesive Seal:

These are closure adhesives that only adhere to themselves. The adhesive is applied to the envelope in two patterns and when the two patterns are pressed together, the flap is sealed.

Latex cohesive is made from natural rubber latex extracted from rubber trees. The adhesive is supplied in a water-based liquid form to the envelope converter. It is of note that special precautions must be taken with latex cohesive envelopes. The shelf life of the finished envelope can be significantly reduced by exposure to heat, ultraviolet light, sunlight or dust.

Example:



Pressure Sensitive Seal:

These adhesives require only pressure to be activated. The tacky adhesive pattern is usually covered by release paper to prevent the envelopes from sticking together. The paper is peeled from the adhesive and the flap is pressed into place. There are two types of pressure sensitive adhesives that are typically used: water-based and hot melt. Water-based is derived from synthetic resin, usually acrylic. Hot melt is derived from synthetic rubber and is applied in solid form and applied molten.

Envelopes requiring the best tack and adhesion should use the hot melt type of pressure sensitive seal as opposed to the water-based pressure sensitive seal.

Back Seam:

The back seam adhesive is what holds the envelope together and is applied to the back of the envelope.

Required Properties for Back Seam:

- A. **Adhesion:**
The adhesive should produce a paper-tearing bond on all conventional envelope papers.
- B. **Penetration blocking resistance;**
The adhesive must not bleed through the paper on diagonal seam envelopes and prematurely reactivate remoistenable adhesives.
- C. **Resistance to humidity:**
In high humidity storage conditions, the adhesive must maintain its bond.
- D. **Color:**
Under normal storage conditions, the adhesive should not be visible through the paper.
- E. **Non-wrinkling:**

After the adhesive has dried, the back seam adhesive should not wrinkle the paper.

F. Non-staining:

Adhesives should not cause discoloration on colored papers.

The back seam adhesive formulations vary depending on how they are applied on the envelope-folding machine. The two methods of application are mechanically applied (stencil), which are blends of natural starch and synthetic resin and extrusion applied, which are all synthetic resin. The two methods are supplied to envelope converters in a water-based liquid.

Window Patch:

Window patch adhesives hold the window patch to the inside of the envelope. The kind of gum used will depend on the type of material used for the window patch, the gum box being used and the speed of the machinery.

Required Properties:

A. Adhesion:

The adhesive must hold the patch securely inside the envelope. This is largely dependent on coating weight.

B. Color:

The adhesive must not show through the envelope so it is typically white in color.

C. Humidity resistance:

Under humid conditions, the adhesive must maintain its strength.

Patch gums are formulated to provide good viscosity, stability, machinability and quick tack. The adhesives are made from synthetic resins that resemble plastic upon drying. They are also supplied as a water-based liquid.

Specialty Adhesives

Fugitive Release Adhesives:

Some special envelope constructions require a temporary holding bond during the folding operation and subsequent non-tear properties. There are commercially available adhesives available for these operations. To ensure the easy release properties are achieved, careful handling and precise application is required.

Microfiche Adhesive/Archivable Gums:

Envelopes used for storage of microfiche, photographic and x-ray film requires special paper and adhesives. The two main requirements for these gums are that they be neutral in pH (acid-free) so they won't react with the sensitive contents of the envelope. Archivable gums are designed to be used when manufacturing envelopes used for storage of these sensitive and delicate materials. Adhesives with an acidic pH can interact with film and cause irreparable damage on contact. These gums must also have non-hygroscopic properties. Gums for these special use envelopes should not hold or attract water so there is no risk of staining or bleeding through the envelope over time.

4. Tips on Ink Selection

Ink selection should be based on the kind of results that are desired. Inks are available in a myriad of types and colors.

Inks normally consist of pigments, vehicles and additives. Pigments or dyes give color to the ink to make it visible on the substrate/medium. Vehicles carry the pigment through the press and onto the substrate. Some additives used are silicone, wetting agents, waxes, driers and materials used to enhance drying speed, color development, and slip and mar resistance. These improve the performance of the ink. Vehicle formation is most important to the ink's press performance.

Vehicles can account for up to 75 percent of ink content and are comprised of blends of synthetic solvents, oils, and resins that are manufactured under strict guidelines for cycle times, heating and cooling. This allows ink formulators to create an infinite variety of vehicles using hundreds of materials, alone and in combinations, with distinct properties that are suited to different print applications.

The vehicle is responsible for body viscosity or flow properties of ink. It's the primary factor in transfer, adhesion, tack, lay, drying and gloss. The vehicle is the most critical component of ink formulation and determines how well ink does its job.

Print process and application are what the ink formulation should be dependent upon. Various processes during the print process require different flow characteristics to travel through the press to the substrate/medium. The faster presses make the transfer properties of inks more vital. When speed increases, ink misting tends to increase. Also, with today's faster press speeds, vehicle stability becomes an important issue. Faster presses can increase shear and heat build-up that can cause ink to break down which can lead to dot gain (print defect in which half tone dots appear larger than they should causing inaccurate color production), toning (toner is a highly concentrated pigment and/or dye used to modify the hue or color strength of an ink), and other print quality problems. Productivity can be offset by these problems, but adjusting the vehicle formulation can control such problems.

Choosing the correct ink can be a challenge for printers that wish to use lighter weight, uncoated or recycled stocks for economic or environmental reasons. The softer surface of these stocks make them prone to water absorption, dot gain and picking. Choosing the incorrect ink vehicle can compound the problem. Communicating your stock specifications to your ink manufacturer can help eliminate these issues. The alternative would be to change substrates or settle for inferior results.

Optical character recognition (OCR) inks are used to print documents and forms processed by an optical reading and scanning device. These inks can be found in readable and non-readable scanning types and are high in opacity. They also have the lowest reflectance pigments, such as carbon black, which can be read by optical scanners. The more carbon black barcode ink contains, the better it will be read by OCR equipment. Ensure that your mailer checks printing cartridges regularly.

Flexography is a typographic (raised type) form of printing using resilient plates and fairly thin bodied, resin-solvent or water-based inks and is used most often in the envelope manufacturing industry.

Fountain solution, which is a dampening solution used in lithography, is usually a mixture of water, acid, buffer and gum to prevent the non-image area of the plate from accepting ink. The dampening system in offset lithography is the device on a press for carrying fountain solution to the plate in a controlled manner. Emulsification in lithography is a condition resulting from the distribution of fountain solution in the ink. Improper emulsification will produce poor print results.

Requests for a Drawdown, a film of ink deposited on the paper/medium/ substrate by a smooth-edge blade to evaluate the undertone and mass tone of the ink, can mean fewer problems with the finished product.

The Pantone Matching System or (PMS) helps printers and their customers to communicate using a common standard when specifying colors and inks. The main problem with the Pantone books is that they are produced using a lithographic method and use pigments designed for that type of printing. Many of those pigments cannot be used for Flexographic inks. When the color match is produced it may be using different pigment and may not be an exact customer match. Pantone books can differ within the edition and even more from edition to edition. The books can also fade with time, so the colors are no longer true. Therefore, care must be used when choosing colors.

The Flexographic Trade School (FTS), under license with Pantone, Inc., has made the process of matching PANTONE (PMS) colors when using flexographic printing much easier. *The FTS Flexographic Application Guide in Popular PANTONE Colors*, printed by FTS in collaboration with PANTONE, Inc., is a guide that provides designers and printers with a tool to demonstrate how a PANTONE color will reproduce in flexography printing. It was created to assist in matching popular PANTONE colors used in flexographic printing. The guide has color pages that have a matching color swatch printed on high gloss and matte substrates. Half of the swatch has a UV varnish and the other half has a non-gloss Over Print Varnish (OPV). The color guide is made for flexo, using flexo inks, with flexo tooling and printed on a flexo press. The colors were selected based on ink companies' popular usage and PANTONE's experience. This color match book built for flexo also provides a tool that offers application guidance for the color. The colors are printed as a solid, in various screens, as a barcode and with several type sizes in several line rulings. The guide is printed with flexographic inks and pigments showing exactly how the color was achieved, a tool previously not available to flexo production personnel.

To order this valuable guide, you may contact FTS at 704-504-5008, fts@aol.com or www.weareflexo.com.

It's significant to know that ink manufacturers are using new raw materials such as vegetable-derived oils like soy and linseed in place of petroleum-based oils in some formulations. Soy ink is more environmentally friendly, improves the life span of the printers, makes it easier to recycle paper, and is more economic in the long run.

5. Envelope Storage

Envelopes should be packed and stored resting on edge, not laying flat. Envelopes should be stored in areas that are well ventilated and dry because humidity can cause envelopes made with remoistenable adhesive to prematurely reactivate and

tack together (blocking). Ideal storage conditions are temperatures of 65-85° Fahrenheit and humidity at 35-65 percent RH (relative humidity).

Boxes and cartons should be closed and sealed to prevent moisture from damaging the envelopes. Boxes should not be placed directly on the floor, but placed on a raised surface such as a wooden pallet to avoid having moisture from the floor permeate the boxes and affect the envelopes. Pallets should be stretch wrapped to further protect the boxes of envelopes.

Following the proper storage procedures will help prolong the shelf life of your envelopes.

- A. **Do not exceed the RH levels indicated on the previous page or you could damage envelope gums and/or create problems in paper accuracy or problems with USPS automation compliance equipment.**
- B. **Store envelopes away from windows and direct sunlight.**
- C. **Store envelopes off the floor and only in industry approved containers. Do not leave partial boxes of envelopes open.**
- D. **Make an effort to use envelopes quickly. Try not to use envelopes older than six months from date of manufacture. They will probably still work, but gum dries out and paper will yellow with time.**

6. Envelope Materials and the Environment

Do you recognize the symbols below?



Most of us do because we see them everywhere there is a recycling program. Recycled content, either pre-consumer or post-consumer, is often indicated through the use of a recycling symbol. This familiar symbol started out as the winning entry in a student graphic design competition held in 1970. Shortly thereafter, the symbol entered the public domain.

The versions of the recycling symbol include the original chasing arrows design, solid black arrows, white arrows in a circle and others. Many different organizations have published standards and guidelines regarding the meanings of these symbols, but their recommendations are often inconsistent and there is no higher authority with a legal mandate to settle the matter. The American Paper Institute, now the American Forest & Paper Association (AF&PA), originally published guidelines for recycling symbols.

Recyclable identifies a product or substance as theoretically capable of being recycled into new products. The term does not imply that the product itself actually contains any recycled fibers or materials. Non-synthetic paper is not only recyclable, but is made from a renewable source, trees. Trees serve as the primary source for paper and there are as many kinds as there are uses for it.

Any paper identified as recycled must contain fibers obtained from previously manufactured paper that has been cooked and reduced back again into pulp. Recycled papers may contain either pre-consumer or post-consumer content or both. In this context, the term virgin refers to paper with no recycled materials at all.

Pre-consumer content is the percentage of recycled materials, which represents wastes that were reclaimed during or after the manufacture of paper or paper products before they were used by a consumer. For example, cuttings and trimmings from an envelope plant are always recycled back to the paper mill. When reused in paper making, these materials are classed as pre-consumer content.

Post-consumer content is the percentage of recycled materials, which have been used by the final consumer. These materials must have been collected from schools, offices and homes. They have been de-inked and re-pulped for use in the papermaking business.

7. The Paper Industry and the Environment:

The paper industry is committed to improving air and water quality. Key industry supported programs such as the Sustainable Forest Initiative® (SFI) are actions being taken by our industry to care for our environment. SFI is a comprehensive system of principals, objectives and performance measures developed by foresters, conservationists and scientists that combine the perpetual growth and harvesting of trees while protecting wildlife, plants, soil, and water quality. In North America there are over 136 million acres of forestland enrolled in the SFI program.

The SFI program was adopted by the American Forest & Paper Association in 1994 and participation in the SFI program is a condition of membership for AF&PA. Membership with AF&PA may be revoked if SFI standards are not met.

The paper industry is strongly committed to protecting our environment and plants 1.7 million trees every day, or approximately three trees planted for every one harvested. Eighty-four percent of paper makers use recovered paper and packaging materials such as corrugated board that are almost completely recovered.

According to the AF&PA, more paper is being recovered today than ever before. Every ton of paper recovered saves 3.3 cubic yards of landfill space. In 2002, 48 percent of consumed paper was recovered. The goal of the paper industry is to recover 60 percent by the year 2012.

The Rainforest Alliance Initiative aims to recruit additional forestry operations for FSC certification, certify 170 million additional acres of forestland, increase support for certified small and medium-sized businesses, develop markets for certified products and help ensure that the companies' suppliers meet Forest Stewardship Council (FSC) standards or are working toward FSC certification.

Paper Industry Statistics:

- **Nearly 80 percent of all U.S. paper makers use recovered fiber to make new products.**

- **Recovered paper accounted for 37 percent of all paper consumed by the U.S. paper industry in 2003. This figure is down by .7 percent from 2002, but up by 26.6 percent in 1990.**
- **Paper and paperboard accounted for more than 75 percent of all packaging material recovered in 2003, which makes paper the most recovered packaging material.**
- **More than 37 percent of the raw material used to make new paper products comes from recycled paper.**
- **In 2001, the EPA reported that 5.41 million tons of Standard Mail was generated. Of that, nearly 33 percent was recovered.**
- **The U.S. paper industry has a goal of recovering 60 percent of all paper consumed in the United States by 2012.**
- **Export demand for U.S. recovered paper has been expanding rapidly. By all indications it will continue to increase, particularly from nations with developing paper industries, such as China and India.**
- **Domestic mills will seek to maintain or increase their consumption of recovered paper after pulling out of a multi-year slump.**
- **America's paper industry exports 12 million tons of paper and paperboard products annually, a \$10 billion key component in America's balance of trade.**

The U.S. paper industry and the United States Postal Service (USPS) are highly dependent upon one another. Over 10 million tons of paper is distributed through the Postal Service each year.

Education regarding this important issue is key and there are in-house recovery plans in place in most of the company plants involved in paper or envelope manufacturing.

VI. Talking with an Envelope Manufacturer

Ordering envelopes does not have to be difficult. If you remember some basics, you will get what you order every time. We are also going to help you speak a little “envelope” along the way.

1. Doing Business with an Envelope Manufacturer

Even though the business name says envelope manufacturer, always ask if they make the envelopes or if they buy the envelopes from someone else. Some in the envelope business are called envelope jobbers or printers and all they do is finish an envelope that they get from someone else. This has both benefits and challenges. When you don't make the entire product, you are dependent on someone else's workmanship. Most of the time, an envelope purchased from an intermediary will work well, but you need to keep in mind that someone else other than the person you bought it from, made that envelope. If the window position is wrong, if the gumming is not correct, if the window film has scratches in it, this may be a manufacturing problem and has to be addressed with the original manufacturer. Most of the time your printer or jobber will perform this service for you, but sometimes you may be the one who has to contact the manufacturer.

While this may not be a problem, it is always important that you ask before you buy. Find out who makes your envelopes just in case you need to resolve an issue with the envelope manufacturer. Always be careful when you are getting a “special deal” on envelopes. Why is this offer being made? Where were the envelopes purchased? When were the envelopes made? What types of materials were used? Is the flap size standard? Is the film correct in the window for address readability? There are times when companies make products that are not up to industry standards. There are times when the paper is less than normal quality or the envelope flap is cut to save paper or the window film or gumming is not quite correct. Always remember that if it looks too good to be true, it just might be. If you are educated in the materials you want and the size and shape of product, you will get what you want every time. Always, always, inspect envelopes before you accept them.

2. Normal Variances

Normal machinery variances in the envelope manufacturing industry are +/- 1/16". This occurs because as machinery runs, it heats up, and metal expands. In addition, normal wear in cylinders and bearings can cause subtle variations in cutting location and folding scores. As a result, your envelope may be slightly larger or slightly smaller than you ordered. The window position may be slightly off. The key word here is “slightly” because 1/16" is very small. Your envelope manufacturer will make every attempt to hold tolerance, but if your application requires an exact measurement, it's best to let the envelope manufacturer know so he/she can adjust the machinery for variation in a manner that falls within your size tolerance.

For standard #10 window envelopes, the industry recommends that you order a window that is no lower than 5/8" from the bottom of the envelope. The Postal Service mandates that the envelope window be no closer than 1/2" from the bottom of the envelope. By selecting a 5/8" window, you know that you are well within postal tolerances.

Flexographic printing plates also have a small amount of “play” in them. Remember that your envelope manufacturer will insist that you approve the artwork and will make the product that conforms to your exact instructions. It is difficult for the industry to interpret what you thought you wanted, so it is important for you to look at every proof carefully and make sure the measurements are correct, the barcode is correct and the artwork is where you want it to be. Most flexographic printing variations are so small they may be difficult to detect without a trained eye using a magnifier. Remember, barcode placement, if used on the outside of the envelope, must be exact per USPS regulations. Familiarize yourself with those regulations and take into account that a small amount of variation in plate thickness and placement can occur as the press heats up and vibrates. Most postal regulations assume some small variation, but if the regulations show exact placement, they should be exact.

Envelope gum lines (adhesives) should be exact. Envelope manufacturers carefully check for gum “slinging” or excessive gum around the windows. Some even use pattern gumming equipment to make sure gum lines are exact. It is important that during your visual inspections you note any imperfections in the gum. Please also note that envelope seal flap gums are designed with high speed inserting in mind. They wet and tack quickly. Sometimes mailroom staff do not use the proper type of wetting agent or fail to clean their wetting equipment, which can cause problems with envelopes sealing after inserting. It is always important to check the condition of inserting equipment because the solution to the problem might be right in front of you. Before you suggest it is the envelope, check out the equipment one more time.

There are subtle variations in ink that occur for a wide variety of reasons. The substrate used, the ambient temperature, humidity, and other contaminants can impact printing quality. Remember to clearly specify the PMS color on your order. Nearly all envelope manufacturers have handheld color densitometers so they can check for color variation right at machine delivery. Most envelope manufacturers do this as part of their quality manufacturing programs.

3. Overages and Underages

It's very difficult to manufacture an exact number of envelopes. This is because the envelope manufacturer must estimate the amount of paper needed to run the job. The estimate usually allows for slightly more paper than is needed to avoid having underages after the run is completed. When customers ask for an exact number of envelopes, the manufacturer will still have to estimate the amount of paper in the same way. Some companies may ask for a small service charge if the customer wants an exact run. The manufacturer will proceed in the same manner and discard any envelopes over the number specified. Using all of the factors including the caliper or thickness of the paper, the roll width and any other variables that affect the outcome when running a job, does not allow for exact figures so having close communication with your customer will help the envelope manufacturer avoid customer dissatisfaction.

Sometimes you may get more envelopes than you ordered and your envelope manufacturer may ask you to pay for these extra envelopes. This normally occurs when the order is a custom order and there was significant set-up time involved in the order. Normally this should not be more than a few thousand extra envelopes. If the order is significantly larger, you should check the original order and see if a mistake was made. Customer service staff may make an error in quantity ordered.

Our association office sometimes gets calls from envelope customers who report receiving less than a full box of envelopes or more envelopes than they ordered. Normally, if the boxes look less than full it could be the caliper of the paper that was used. Caliper is the thickness of the paper, and paper mills control caliper to +/- 1/1000". It may seem like there are less envelopes than you ordered, yet if you check you will find that there are usually more than the quantity specified in the box.

The best way to confirm an order quantity on a purchase order is to circle the quantity and put your initials next to it. Always ask for a paper order confirmation if you are calling in an order.

Envelope manufacturers normally put in a few extra envelopes just in case there is an error in inserting or other converting processes. We prefer that you have plenty of envelopes to do the job, rather than too few. Keep in mind that it is better to order a few more than you need in case you have product damage. You will then be able to make up the balance of what you need quickly, which is particularly helpful if it is a custom style product.

4. Payment

If you are dealing with an envelope company for the first time, don't be insulted if they ask you for a credit reference. Envelope companies value long-term relationships and these references are valuable in helping them to serve you better. Many envelope companies offer a host of value-added services and as soon as they can establish a business relationship with you, the faster you will start enjoying the benefits of the services they offer. Many have web-based ordering systems that make it easy for you to reorder. Others have well trained customer service staff that will work with you to get your product on time, in the correct quantity, at the correct price, and at the right location.

Payment for merchandise received is normally due in 30 days. Envelope manufacturers have to pay their suppliers quickly and we all have employees that must be paid. Companies do give discounts for prompt payment, normally within 10 business days. If your normal payment schedule is different, it is best to consult with the envelope provider before you start doing business together to ensure they can accommodate your needs.

5. Extra Services

As mentioned above, many envelope companies offer value-added services. A number have a wide variety of printing presses so they can handle your printing needs as well as your envelope needs. Some offer pick up and delivery services with their own truck fleets. Some offer inventory management services, but many of these services are order dependent. Envelope sales representatives will be able to acquaint you with all of the services they offer.

6. Postal Information

Many members of the Envelope Manufacturers Association have had their employees specially trained in postal regulations that govern the size, shape, and materials in an envelope. Additionally, companies have trained their employees to

understand the function, controls, and verification procedures with the United States Postal Service's MERLIN automated mail acceptance system.

Ask your envelope provider if they have employees who are EMA Postal Partners™ or MERLIN Partners™. This is an extra step they have taken to make sure they are not only delivering products of the highest quality but are also meeting postal regulations.

7. Industry Organizations

Most envelope manufacturers will belong to the Envelope Manufacturers Association. This is the industry's trade association founded in 1933. EMA helps to educate envelope manufacturers on production techniques and in postal regulations. The association maintains a web site at www.envelope.org. You can find a great deal of background information on the industry, industry facts and statistics, current trends and other information just by consulting this web site.

EMA is always available to help customers of envelope manufacturers with technical assistance and advice. If you have a question, feel free to contact the national office at 703.739.2200. Our normal hours are 9:00am to 5:00pm. We are available 24 hours per day through our web site at www.envelope.org.

VII. Working with the Postal Service

It takes considerable planning to make sure each mailing conforms to the United States Postal Service's (USPS) requirements and specifications for automated sorting and scanning equipment. However, your customers will save substantially on postage and their mail will travel faster and more accurately when the USPS requirements are followed to the letter.

Where to Start

Everything you need to know about preparing mail for distribution in the United States is detailed in the *Postal Explorer/Domestic Mail Manual* (DMM). This manual's more than 1,000 pages (10 MB PDF file) keeps you abreast of frequent detail changes and can be accessed online at <http://pe.usps.gov/>.

You can download a choice of additional documents provided at this site or type in key words for a search on a few or all of the documents. For example, a Quick Service Guide on this site summarizes the standards for mail and is a handy quick reference.

If you or your customers don't have the time to keep on top of or search the Internet for all of the DMM's regulations, you may want to rely on someone who works with the mail on a regular basis. The USPS is strict on acceptance requirements, and qualified envelope sales representatives specialize in knowing the fine points of postal regulations, as well as how to get the best rates. Ask your envelope supplier to put you in contact with their EMA Certified Postal Partner who will be very knowledgeable about postal rules and regulations.

It is always important to work with your sales representative to review the postal regulations for any mailing before you finalize your order for envelopes. Also, take a mockup or sample of your customer's mail package to your local post office to make sure it qualifies for the class of mail and postage rate you want. This up-front investigation could save you thousands of dollars in unplanned postage costs. Your envelope sales representative works closely with the Postal Service and will be glad to help you.

Presorting Mail

Many of your customers may choose to presort their mail to take advantage of the postage discounts. Basically, Zip Code groups all of the pieces going to the same destination into the same package or tray. You'll sort to specific areas, and then work your way up to more general areas. All leftover mailpieces are put together. Your envelope sales representative can help you select a presort bureau or lettershop.

The Postal Customer Council

If you want to handle your own mailings, it is important to have staff dedicated to knowing and keeping abreast of the ever-changing postal regulations. A first step is to become involved with the Postal Customer Council (PCC), which includes representatives from businesses across the country and the Postal Service. Through regular meetings, vendor events, educational sessions, mailer clinics, and seminars, PCC members keep abreast of the latest postal developments and work closely with local post offices to make mail service more efficient, timely, relevant, and profitable. The Postal Service supplies speakers and resources to help PCC members and their organizations grow and develop professionally through focused educational programs.

More than 250 PCCs represent nearly 150,000 active mailers in the United States. The PCC Web site (www.national.pcc.usps.com) is the prime communications vehicle of the PCC program. The site includes a PCC locator map, newsletters, upcoming events, current updates, changes, enhancements, and announcements affecting the PCC program.

Postal Customer Council Advisory Committee

In 1993, in an effort to improve the effectiveness of the national PCC program and to extend its usefulness and relevance within the mailing community, the Postal Service formed the Postal Customer Council Advisory Committee (PCCAC). Its goal was to seek advice from a representative group of mailers on plans to improve the national PCC program. The PCCAC serves as a link between PCCs and the USPS by providing guidance and best practices, policies and guidelines, bylaws interpretation, success indicators, and education forums.

USPS Web Sites

In addition to the availability of the DMM online, there are numerous URLs representing the Postal Service's award winning Web site. For upcoming events, breaking news, and business primers, start at the home page <http://www.usps.com>. If you know what information you need, click on one of the navigation bars or enter a search term. Click on "Getting Started" for an introduction to bulk mail and to learn what class of mail is best for a specific mailing.

Business Mail 101 (<http://www.usps.com/businessmail101/>) is a tool for beginning or infrequent mailers with all of the key decision points for a mailing. It contains a glossary of terms and commonsense tips for making the most of the mail. This section describes each class of mail, including what can be mailed, the minimum and maximum weights and sizes, and the number of pieces needed for discounted postage rates. A postage rate calculator is at <http://postcalc.usps.gov/>. For most mailings, the content of the material and postage rate will determine the best class of mail for the job. If you are unsure about what class is best for your customer, ask your envelope sales representative.

International Mail

To mail overseas, you can calculate rates online with the international rate calculator at <http://ircalc.usps.gov/>.

Get mailing conditions for international mail at Service Updates at: <http://www.usps.com/global/serviceupdates.htm>

Useful Services

Here are some of the USPS services you will find useful:

MERLIN

MERLIN (Mail Evaluation Readability and Lookup Instrument) is the Postal Service's automated tool for mail acceptance. MERLIN verifies against the standards set in the *Domestic Mail Manual* for proper postage discounts, sorting, barcodes piece counts along with other acceptance tests for both letter-size and flat-size mailings. Of the most relevance to envelopes are its processes for address/barcode accuracy, verification, and mailpiece

dimensions. It is important that your inserts are tested with MERLIN to resolve any readability problems **before** your mailing goes out.

There is a great deal of information on MERLIN at a special Web site (www.usps.com/merlin). Currently, USPS's minimum size for First-Class Mail is 5" long, 3 ½" high, and 0.007" thick. Pieces weighing 1 ounce or less may be subject to the non-machinable surcharge for items weighing 1 ounce or less with any of the following criteria:

- a. Square cards or letters.
- b. The height exceeds 6 1/8", or length exceeds 11 ½", or thickness exceeds ¼".
- c. The length divided by height is less than 1.3 or more than 2.5 (length is the dimension parallel to the address).
- d. It has clasps, strings, buttons, or similar closure devices.
- e. It is too rigid or contains items such as pens that cause an uneven thickness.
- f. It has an address parallel to the shorter dimension of the mailpiece.

CONFIRM Provides Valuable Data

With this service, you will be able to receive advance delivery information about both incoming and outbound mail. CONFIRM provides electronic tracking information to USPS customers about their First-Class Mail, Standard Mail and Periodicals that are letter-size and flat-size. CONFIRM uses a combination of the POSTNET and PLANET codes to track mail by scanning a piece at each USPS processing facility. A centralized network service collects and packages the scan data for use by customers. These files are available as both raw data and in reports shared by customers and the Postal Service.

CONFIRM is the first evolution for Intelligent Mail application. Intelligent Mail uses machine-readable codes to uniquely identify mail. The Postal Service is building the infrastructure and technology to maximize the collection and reporting of data that reflects flow through the mailstream. The Postal Service visualizes the OneCode Vision, which uses one code that contains all the data needed to sort and deliver the mail and to request special services. The 4-state code contains nearly three times as much data as the current POSTNET and PLANET codes with 31 digits containing: sender's unique identifiers, mailpiece identifiers, delivery point codes for sortation, and encoded services for the mailer. Pilot testing for this innovative application begins this winter.

To learn more about how this new product can benefit you and how to get started, contact:

National Customer Support Center
CONFIRM Service Using Planet Code Barcodes
6060 Primacy Parkway, Suite 201, Memphis TN 38188-0001
Phone: 800-238-3150
E-mail: Confirm@email.usps.gov
Website: mailtracking.usps.com

ACS Code Broadens Mail Placement Options

If your customers preprint address correction service (ACS) participant codes on mailpieces, you may place an ACS code on the mailpiece or an address label, with or without a barcode, as long as certain requirements are met. (See *Domestic Mail Manual M013*). The optional location is authorized for both letter-size machine-ready pieces and flat mail, as long as both types meet the following requirements:

- Your ACS participant code must be printed directly below the ancillary service endorsement, left justified, when the endorsement is placed directly above the address block.
- Mailer keyline information, if used, must be at the top line of the address block. Barcodes must not be printed above the mailer keyline, however.
- For a window envelope, the clearance between the top line (mailer keyline) of the address block and the top edge of the address window must be at least 1/25".
- This clearance must be maintained during any movement of the insert in the envelope.
- An address label must have at least 1/25" clearance between the top line (mailer keyline) of the address block and the top edge of the address label.
- The ACS participant code and ancillary service endorsement must be printed in a non-narrow variant of Helvetica or Arial sans serif font of 10 to 12 points.

Keep Addresses Current

More than 42 million Americans move every year. To help keep addresses current, the Coding Accuracy Support System (CASS) improves the accuracy of carrier route, five-digit ZIP, ZIP+4, and delivery point codes in addresses. CASS is offered to all mailers, service bureaus, and software vendors that want to evaluate their address-matching software and improve the quality of their ZIP+4, CRIS, and five-digit coding accuracy. The United States Postal Service's National Customer Support Center (NCSC) grades this process, and the results returned to mailers in order to provide useful diagnostics for correcting deficiencies.

Publication 363, *Updating Address Lists is a Smart Move*, can be downloaded at <http://www.usps.com/cpim/ftp/pubs/pub363.pdf> or go to <http://www.usps.com> and search for CASS for more information.

Tips for Addressing Mail

When the Postal Service processing equipment misreads an address, that envelope may get overlooked or delayed. The delivery address is the most important information on your envelope. The USPS recommends the following format:

Name or attention line:	JANE L MILLER
Company:	MILLER ASSOCIATES
Suite or apartment number:	If it cannot fit on the address line
Delivery address:	1960 W CHELSEA AVE STE 2006
City, state, ZIP Code:	ALLENTOWN PA 18104

Automated mail processing machines read addresses on envelopes from the bottom up and will first look for a city, state, and ZIP Code. Then the machines look for a delivery address. If the machines can't find either line, your mail could be delayed or misrouted. Any information below the delivery address line (a logo, a slogan, or an attention line) could confuse the machines and misdirect your mail. The USPS provides the following guidelines:

- Always put the address and the postage on the same side of the envelope.
- On a letter, the address should be parallel to the longest side.
- Use all capital letters.
- No punctuation.
- At least 10-point type or larger.
- One space between city and state.

- Two spaces between state and ZIP Code.
- Simple type fonts.
- Left justified.
- Black ink on white or light paper.
- No reverse type (white printing on a black background).
- If the address appears inside a window, make sure there is at least 1/8" clearance around the address, even if the letter shifts inside the envelope.
- When using address labels, make sure no important information is cut off. Also make sure labels are on straight. Mail processing machines have trouble reading crooked or slanted information.

Additional Tips

- Always put the attention line on top (never below) of the city and state or in the bottom corner of your envelope.
- If the suite or apartment number does not fit on the same line as the delivery address, put it on the line ABOVE the delivery address, NOT on the line below.
- Words like "east," "west," "NE" or "NW" are called directional and are VERY important. Always include them.
- Use the free ZIP Code Lookup and the ZIP+4 code lookup on the Postal Service web site to find the correct ZIP Codes and ZIP+4 codes for your addresses.
- Almost 25 percent of all mail has something wrong with the address -- for instance, a missing apartment number or a wrong ZIP Code. Can some of those mailpieces get delivered in spite of the incorrect address? Yes. But it costs the Postal Service time and money to do that.
- When a First-Class Mail letter weighs 1 ounce or less and the address is parallel to the shortest side, the piece may be non-mailable or will be charged the non-machinable surcharge.
- Sometimes it's not important that your mailpiece reach a specific customer, just that it reaches an address. One way to do this is to use a generic title such as "Postal Customer" or "Occupant" or "Resident," rather than a name, plus the complete address.
- Fancy type fonts such as those used on wedding invitations do not read well on mail processing equipment and may slow down your mail.
- Some types of paper interfere with the machines that read addresses. The paper on the address side should be white or light in color with no patterns or prominent fleck. Avoid glossy, shiny, coated paper stock.

VIII. Final Thoughts

We hope this document has been a useful reference. Our goal is to make the experience of ordering and using envelopes an easy one. All of the 26,000 employees of the envelope manufacturing industry in North America are dedicated to making high quality products that move through the postal system with ease. We are honored to represent our industry and to provide our customers who order our products with a positive experience to promote a lasting relationship.

If you have any questions or comments, please contact:

Envelope Manufacturers Association
500 Montgomery Street, Suite 550
Alexandria, VA 22304-1565
Ph: 703-739-2200
www.envelope.org

IX. Glossary of Terms

Abrasion

Process of wearing away the surface of a material by friction.

Abrasion Resistance

Ability to withstand the effects of repeated rubbing and scuffing. Also called scuff or rub resistance.

Abrasion Test

A test designed to determine the ability to withstand the effects of rubbing and scuffing.

Absorbency

A property of a porous material, such as paper, that cause it to absorb liquids or vapors (e.g., moisture).

Absorption

Penetration of one substance into the mass of another. Partial suppression of light by a transparent or translucent material.

Acid

A compound that yields hydrogen (H) ions in solution; has a corrosive action on many materials, sour in taste, reddens litmus paper. Concentration stated in terms of pH values; seven is neutral, lower numbers indicate acidity. The lower the value, the greater the acidity.

Acid-Free Paper

Paper with no acidity and a slight alkaline content. Due to its long life expectancy, acid-free paper is preferred for archival purpose such as legal contracts and wills. It is also used for microfiche jackets because of the sensitivity of film to acids.

Adjustable Die

An envelope die made from four separate pieces of angled steel, held together with long threaded bolts. This design allows the corners to be moved in and out to create almost any size envelope.

Adhesives

There are two main groups of adhesives used to manufacture an envelope. The first group consists of fastening agents used to bund the seams of the envelope together permanently. The second group includes the various sealing agents used to bind the seal flap to the back of the envelope.

Against the Grain

Folding or feeding paper at cross-angles to the grain direction of the paper. Also called crossgrain.

Air Mail Envelope

A light-weight envelope with red and blue border and "Air Mail" printed on the face, specifically designed for keeping the cost of postage down by reducing the weight of mailing.

Alkaline Paper

Paper made with a synthetic alkaline size and alkaline filler like calcium carbonate, which gives the paper over four times the life (200 years) of acid-sized papers (40-50 years).

Anhydrous

Not containing water.

Anilox Roller

A metal or ceramic-coated engraved roller in flexographic presses used to meter a controlled film of ink from the ink fountain to the printing plate.

Announcement Envelope

An envelope designed for use in greeting cards and formal invitations. Unlike a baronial envelope, this style has a square flap.

Anti-Skid Compounds

An additive used in ink to retard slippage factors for the stacking and handling of packaging.

A-Style Envelope

Announcement style, open side envelope with double side seam construction and square flap. Available in six standard sizes and most often converted from text paper.

Aspect Ratio

A postal term for the length of an envelope divided by the height, where length is always defined as the dimension that is parallel to the address. Thus a 4 x 6 postcard would have an aspect ratio of 6/4 or 1.5.

Back Gum

Also called the seam gum. It is the adhesive used to seal the seams on the back of the envelope to form the envelope pocket.

Banding

A counting method in which a paper band is used to seal the seams on the back of the envelopes. Most commonly used for greeting envelopes.

Bankers Flap Envelope

Also known as a wallet flap, this envelope is readily available in the larger commercial envelope sizes and is used for heavy mailing applications, such as bank statements that must get through the mail system intact secure.

Barcode

A series of vertical full bars and half bars representing ZIP Code information relative to the address on the mailpiece.

Baronial Envelope

This envelope features a long pointed flap and deep throat, features associated with classic and traditional envelopes. This style is used primarily for cards and formal invitations.

Basis Weight

The weight in pounds of a ream (500 sheets) of paper cut to a given standard size for that grade, e.g., 500 sheets of 25" x 38" of 50 lb. book paper weighs 50 lbs.

Binder

The components in an ink film that hold the pigment to the printed surface.

Blank

The die cut paper in the form of an envelope prior to folding.

Bleed

A) The spreading or migration of an ink component into an unwanted area. B) The spreading or running of a pigment color by the action of a solvent.

Blind Embossing

A design, which is stamped without metallic leaf or ink giving a bas-relief (raised) effect.

Blocking

An undesired adhesion between layers of material that might occur under moderate pressure and/or temperature in storage or use, the extent that damage of at least one surface is visible upon separation. For instance, premature bonding of the seal gum occurring in a box of stored envelopes.

Blushing

A milky or foggy appearance in an ink or coating due to precipitation or incompatibility of one of the ingredients. This effect is commonly caused by excessive moisture condensation and is most frequent in periods of high humidity.

Body

A general term referring to viscosity, consistency and flow of a vehicle or ink.

Bond Paper

A term usually used to refer to high quality hard sized paper made wholly or partially from rag fibers, sometimes called "rag paper" or "rag bond". Bond paper readily accepts ink from pen or typewriter. Most letterhead and business forms are a standard 8" x 11" size. The basic size is 17" x 22".

Booklet

An open side, double side seam envelope, usually having a wallet style flap. This envelope comes in many standard sizes. The most popular size is 9 x 12.

Bottom Flap

The section of the envelope folded up from the bottom score to form that portion of the back of an envelope.

Break for Color

To paste artwork and copy for each color onto separate sheets or overlays.

Bright White

When used in reference to envelope grades, this term refers to papers with 84 brightness or above (as opposed to 80 brightness). First introduced to the industry by Union Camp in the summer of 1992, this brightness has now become fairly standard for envelope grades at all mills.

Brightness

The amount of light reflected from the surface of paper. Brightness is rated on a scale from 0-100.

BRM

Business Reply Mail

Bulk

The degree of thickness of paper. The number of pages per inch for a given basis weight.

Business Reply Envelope

A reply envelope that is pre-printed with both a mailing address and postal indicia, including FIM B marks for BRM without a printed BRM Zip + 4 barcode. Postage and fees are paid for by the sender. A permit is required for Business Reply mail.

Caliper

The thickness of a sheet or material (paper) measured under specific conditions and usually expressed in thousandths of an inch (mils).

Cameo

A kraft paper that has a buff or manila color, rather than a darker brown shade.

Camera-Ready

Copy, which is, ready for photography without additional work or clean up. Refers to good, clean flat copy.

Cast Coated

Coated paper dried under pressure against a polished drum to produce a high-gloss enamel finish.

Catalog Envelope

An open end center seam envelope with the seal flap on the short dimension. Catalog envelopes with a single side seam are not commonly used, but are available upon special order.

Cello Window

Short for cellophane window. An acetate window that is almost completely transparent. Cello is a mark of quality in the envelope field, due to its exceptional clarity.

Center Seam

Most common on open end envelopes, this is the permanent seam that joins the two side flaps together at the center of the envelope, running from the bottom of the envelope to the throat of the envelope.

Chalking

A condition of printing ink in which the pigment is not properly bound to the paper by the vehicle and can be easily rubbed off as a powder.

Chroma

The strength or intensity of a color.

Clasp Envelope

Almost always made from an open end envelope, a clasp is secured to the back side of the envelope with a small reinforced hole punched in the flap for the clasp to slip through and be secured. The flap is usually gummed. The clasp can be used for added security if the seal is activated, or can be used repeatedly if the gum stays active.

Closures

Various methods of securing the seal flap to the back of the envelope.

- **String-And-Button:** A string affixed to the outside of the seal flap that the user winds around a disc that is affixed to the back of the envelope directly below the flap. Most commonly used on an inter-office envelope.
- **Latex:** A self-sealing adhesive that requires no moisture. Latex gum is applied to the seal flap and to the back flap where the seal flap touches when closed. When two latex gummed surfaces are pressed together, a bond is formed, holding the seal flap to the body of the envelope.
- **Remoistenable Seal Gum:** Commonly referred to as regular gum. Requires moistening to achieve a seal. There are two main types of seal gum. They are dextrin, a natural vegetable bi-product, and resin, a synthetic substance. Most remoistenable gum used today is a mixture of the two types.
- **Metal Clasp:** A winged metal device that is affixed to the back of the envelope just below the throat and behind the seal flap. It is bent open by the user, inserted through a reinforced hole in the seal flap, and bent back down to temporarily close the envelope.
- **Peel & Seal:** This closure consists of a "super sticky" gum line applied to the seal flap that is covered by strip of release paper. The extremely aggressive nature of this adhesive creates a very secure closure.
- **Tac-N-Tac:** A re-sealable closure consisting of a clear vinyl tape affixed over a hole punched into the seal flap. Another piece of release tape is affixed to the back of the envelope below the throat and behind the flap. When the seal flap is closed, the tape exposed through the hole and the seal flap adheres itself to the release tape on the back of the envelope. This closure can be sealed and re-sealed many times. It is used as an alternative to the button and sting closure on inter-office type envelopes.

Coated Paper

A paper coated with clay or other white pigments and a suitable binder to produce a smooth finish. Coated paper is available in glossy or dull finishes.

Coin Envelope

A small open end envelope ranging in size from a #00-1 1/16 x 2 3/4 to a #7 -3 1/2 x 6 1/2.

Commercial Style

Open side, diagonal or double side seam envelope with a commercial style flap. The most popular envelope for business, it is sometimes referred to as an "official" envelope. It is readily available in many paper varieties and comes in 11 common sizes, with or without a window.

Commodity Style Envelope

Envelopes usually mass produced in standard sizes from open line papers, such as white wove and brown kraft. They are available for all customers of record to purchase.

Converting Only

Paper is supplied by the customer for conversion into envelopes.

Cotton Fiber Content

Also rag content. In papermaking, the percentage of cotton fabrics and linters (usually a multiple of 25). These fibers are used because they add distinctiveness and permanence to a paper. Especially popular for letterhead (and the matching envelope) is the 25 percent cotton version. Papers with 75 percent or 100 percent cotton are most often used for legal documents and records.

Coupon Hitch-Hiker

A remittance envelope with a perforated coupon extending from the flap, and a perforated tail extending from the back flap.

Courtesy Reply Envelope

An envelope, which is pre-printed with a mailing address for reply mail. Unlike a Business Reply Envelope, it is not printed with a postal indicia. Postage must be affixed by the person who mails the letter.

Crinkle Test

A method of testing for ink flexibility on films.

Crop

To eliminate portions of the copy, usually on a photograph or plate, indicated on the original by cropmarks.

Crop Marks

Markings on the margin of the film or artwork, showing the proper position and (if there are bleeds) the portion of the art to be printed.

Cross Direction

In paper, the direction across the grain. Paper is weaker and more sensitive to changes in relative humidity in the cross direction than the grain direction.

Curl

The degree to which a seal application causes a flap to raise its edge on itself, or not lay flat. Can be measured in degrees from the horizontal.

Density

The light absorbing property of a material.

Dextrin

In the envelope trade generally refers to a gum derived from a converted starch.

Diagonal Seam

A seam running diagonally across the face of the envelope (corner to corner). Also known as cross grain or random cutting.

Diecutting

The process of using sharp steel rules to cut special shapes for labels, boxes and containers from printed sheets. Diecutting can be done on either flatbed or rotary presses. Rotary diecutting is usually done inline with the printing.

Die Cut Envelope

An envelope, which was cut from a stack of paper using a solid or adjustable die. After it is die cut, the envelope is then folded in a separate operation. *Compare web envelope.*

Dispersion

A uniform distribution of solid particles in a vehicle, by mixing or milling.

Distortion

Usually refers to a glassine windowed envelope that twisted out of shape so none of the four corners are in the same place.

Doctor Blade

A metal or plastic blade that removes excess ink from the surface of the anilox roll leaving the "cells" filled with ink. In gravure, a knife-edge blade pressed against the engraved printing cylinder, which wipes away the excess ink from the non-printing areas.

Document Envelope

Sometimes referred to as legal envelopes, these are large, open side, double side seam outside, hex flap envelopes produced from heavy manila or brown kraft stock with heavy seal gum, used for mailing and storage of documents requiring security and confidentiality.

Dot Gain

In printing, a defect in which dots print larger than they should, causing darker tones or stronger colors. The increase in size of a halftone dot from film to the printed image. Dot gain consists of two types, physical dot gain and optical dot gain.

Drawdown

In inkmaking, a term used to describe ink chemist's method of roughly determining color shade. A small glob of ink is placed on paper and drawn down with the edge of a putty knife spatula to get a thin film of ink. A film of ink deposited on paper by a smooth-edged blade to evaluate the undertone and masstone of the ink.

Dyes

Coloring materials that are soluble in an ink vehicle, as opposed to pigments that are not soluble and must be dispersed.

Envelope Printing

- **Flexo or Letterpress:** Good quality. Raised type on rubber or polymer plate. Use aniline inks.
- **Dry Offset:** Better quality. 120 line screen maximum. Oil or rubber based inks.
- **Wet Offset:** Best quality. 150 line screen maximum. Oil or rubber based inks. Includes flat sheet lithography.
- **Jet Offset:** High speed imprinting of folded envelopes. 2 color, 2 sides. Tight registration at speeds of up to 60,000 impressions per hour. Allows for fast turnaround on printing of stock envelopes.
- **Corner Card:** Printing of return address, logo, etc. in upper left hand corner.
- **Indicia:** Printing in upper right hand corner of an envelope indicating the sender will pay postage.
- **Tinting:** Patterned printing on inside of envelope for added opacity and security. Corporate logos are commonly used in custom tints.

- **Camera Ready Art Work:** Professionally produced black and white layout of exact copy to be printed. This includes all type setting and/or logo art. This is photographed in order to produce a negative for plate making.
- **Color Separated Art Work:** Each color requires its own art work for producing negatives and plates.
- **Pantone Matching System (PMS):** A book of standard ink colors and various shades of each, which are used to match and identify the colors pre-printed samples. It is a universal ink matching system put out by Pantone Ink Company.
- **Negative:** Produced from the are work and is used to "burn" the image to be printed onto printing plates.

EM

A typesetting measurement that describes the width, as defined by the point size of the type being set. For example, a one em space in 12 point type is 12 points wide. The word *em* originated from the width of a letter "M" in any particular type font. So named because the letter "M" in early fonts was usually cast on a square body.

Epoxy Resins

Plastic or resinous materials used for strong, fast-setting adhesives, as heat resistant coatings and binders.

Expansion Envelope

Much like a grocery bag. The gussets in an expansion envelope allow it to be expanded to accommodate such things as books, binders, manuscripts, and countless other bulky items. They are made in both open end and open side styles, most commonly of 40lb. Kraft paper.

Expansion Score

An additional score on a seal flap, running its length in order to accommodate bulk contents.

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.

Feathering

A ragged or feathered edge, which occurs at the edge of the raised image of a flexo printing plate. It may be caused by poor ink distribution, excessive impression, excessive ink or an ink not suitable for the substrate.

Felt Side

The top (smoother) side of the sheet in paper manufacturing, opposite the wire side. The usual side for printing and for the outside of the envelope.

File-Velope

A large, open side envelope without a flap, which has inside side seams and a short tab at its opening. Generally used as a file pocket.

Film

Unsupported, basically organic, non-fibrous, thin, flexible material of a thickness not exceeding 0.010". Such material in excess of 0.010" in thickness is usually called "sheeting".

FIM Code

Abbreviation for Facing Identification Mark. A pattern of vertical bars printed in the upper right portion of the mailpiece just to the left of the postage indicia, used to identify business reply mail and certain other barcoded mail. The FIM is an orientation mark for automated facing and canceling equipment.

Finish

The surface state of any grade of paper. High finish means a smooth, glossy, hard surface. Required in certain end use applications.

First-Class Mail

A class of mail that includes all matter wholly or partly in writing or typewriting, all actual and personal correspondence, all bills and statements of account, and all matter sealed or otherwise closed against postal inspection. First-Class Mail comprises three subclasses: postcards and letters, sealed parcels and Priority Mail. Any mailable matter may be sent as First-Class Mail. First-Class Mail is a USPS trademark.

First Class Mailer

Any type or size of envelope with a pre-printed diamond shaped border around its perimeter. A break in the border is left in the upper right hand corner on the face of the envelope to accommodate postage and eliminate interference of postal scanners. The words "FIRST CLASS" are normally pre-printed on the face and seal flap, but are not required. The most common color used in printing is green, but most any color can be used.

Flaps Extended

A term used to describe a request to have envelopes produced and packed with their flaps open and extended.

Flat-Mail

A postal term that identifies envelopes larger than 6 1/8" x 11 1/2" but less than or equal to 12" x 15" and less than or equal to 3/4" thick.

Flexographic Ink

A fast drying, relatively low viscosity printing ink used in the flexographic printing process.

Flexographic Printing

A method of direct rotary printing using resilient raised image printing plates, affixed to variable repeat plate cylinders, inked by a fountain roll or doctor-blade-wiped engraved metal roll, carrying fluid inks to virtually any substrate.

Flush Cut

Straight cut with no notch or thumb cut on the front or back. Often refers to the process of cutting the flap off an open-end envelope to convert it into a jacket or sleeve.

Flush Left (or Right)

Aligned at the left (or right) edge of a block of type.

Foil Lined

The seal flap is removed, leaving a straight opening at the top of the envelope.

Fold

Any folded edge of the envelope. Generally referred to as the side, top, or bottom fold.

Fountain

The ink reservoir on a printing press.

Fountain Roller

In flexography, a roller that revolves in the ink fountain transferring ink to the anilox. In lithography, the roller that revolves in the dampening solution transferring water to the plate.

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.

Freesheet

Paper free of mechanical wood pulp.

Fullback

An open side, diagonal seam envelope, with printing covering the entire back area, including the flap.

Ghosting

The appearance of a faint image of the design being printed in areas, which are not intended to receive that portion of the image.

Glassine

Transparent, highly hydrated paper used for windows.

Glassine Window

A vegetable-based window that can be recycled in the same bin with paper. This environmentally friendly window material has a somewhat cloudy appearance compared to poly or cello. Glassine can be adversely affected by changes in humidity.

Gloss

The ability of a surface to reflect light.

Grain

In a sheet of paper, the direction taken by the majority of the fibers. The term "with the grain" means parallel to the grain of the paper. The folding edge should run with the grain to minimize cracking.

Gum

Any adhesive used in the manufacture of envelopes.

Gum Sling

A term used to describe a manufacturing problem caused by back gum applicators splattering gum onto other surfaces of the envelope resulting in consecutive envelopes tacking or sticking together.

Gum Seepage

A term used to describe a manufacturing problem caused by an excessive application of back gum onto other surfaces of the envelope resulting in consecutive envelopes sticking together at the seam or the inside pocket of the envelope being stuck closed at the seams.

Halftone

An image composed of dots, at a given screen frequency (number per sq. in.) that varies in size or shape, and produces visual tonal gradations. These gradations cover the range between white and full color saturation.

Hickeys

In offset lithography, spots or imperfections in the printing due to dirt on the press, dried ink skin, paper particles, etc.

Hitch-Hiker Envelope

A dual purposed envelope for use in both outbound and return response mailing.

Hot Melt

Refers to thermoplastic (flows when heated) synthetic resins used as 100 percent solids adhesives at temperatures between 350°F and 400°F.

Hygroscopic

The property of a substance such as paper or gum that causes it to absorb water vapor from the air.

Indicia

The imprinted designations used on mailpieces denoting method of payment (e.g., permit imprint used on Business Reply Mail).

Inkjet Printing

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

Inserting Equipment

Equipment that automates the process of stuffing envelopes.

Inside Side Seam

A side seam that is glued to the inside of the envelope, rather than to the outside.

Inter-office Envelope

Usually an open end or catalog style envelope which is preprinted on both sides with lines depicting the person and department that the envelope is to be delivered to. On a standard 10 x 13 size there are enough spaces to accommodate 56 deliveries. Eight 3/8 holes are drilled completely through the envelope for visible conformation of any contents. Button and string or Tac-N-Tac closures are used on this type of envelope.

Jacket

An envelope with no flap.

Job Jacket Envelope

A large envelope in which all aspects of a print job are kept for reference.

Jumbo Envelope

A very large envelope of either open end or open side construction. Ranging in size from 9 x 16 to 24 x 36 which can be machine folded to even a larger sizes, which must be hand folded. Most super size envelopes are constructed of 28 lb. to 40lb. Kraft paper.

Kerning

A technique in typesetting that reduces the space between letters in order to achieve a more pleasing and crafted look. Care must be taken to avoid negative letter spacing that may render a word unreadable by postal service scanners that read the mailing address.

Kraft Paper

A paper made from sulphate pulp. The paper has high strength is usually brownish in color but can be dyed to other colors or be bleached white. Generally more difficult to adhere than wove paper.

Latex Gumming

Natural latex adhesive is applied to the flap and the body of the envelope. When dry, the latex areas will adhere to each other but not to other surfaces.

Layflat

The ability of a seal gum application to remain flat and not curl.

Layout

In envelope making, a diagram showing the position of blanks on the sheet size to be utilized for a job. A layout is provided to allow a printer to strip his job up so as to have the printed image fall within the area from which the envelope blanks is to be cut.

Make Ready Flap

Used on commercial open side envelopes, a more generous flap design than the traditional Sealock style. This flap is ideal for envelopes that will be printed with a return address.

Masstone

The color of an ink in bulk.

Matte Finish

A dull finish; flat.

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.

MLOCR

Multiline optical character reader. A machine that scans ("reads") an entire address block on mail, translates the address into a corresponding barcode, sprays the barcode onto the mail, then sorts the mail to an appropriate stacker with a throughput of 30,000 to 37,000 pieces an hour, depending on the type of mail.

Monarch Envelope

A 3 7/8" x 7 1/2 " open side envelope with a pointed flap.

Mottle

The spotty or uneven appearance of printing, manifested by small dark and light areas mostly in solid areas.

OCR

Readable using optical character recognition (OCR) technology — automated equipment that mechanically reads printed type. OCR technology is used by the USPS to scan mailing addresses and print a barcode.

OCR Inks

Optical Character Recognition (OCR) Inks are comprised of lowest reflectance pigments, such as carbon black, which can be read by optical scanners (OCR readers). Non-readable inks, though visible to the naked eye, cannot be read by OCR readers, because they present no reflectance contrast to the machine.

Offset Printing

Also offset lithography, litho printing. Printing that uses a flat surface for transferring the image. A metal plate is treated so that water will adhere every place except where the image is located. Water is applied and then ink. The moist areas refuse to accept ink. Next this plate transfers its image to a rubber cylinder that finally transfers it to the paper. By contrast, letterpress printing uses a raised surface and gravure printing uses a sunken or depressed surface.

Opacity

The quality or state of a substance that causes it to obstruct rays of light. The hiding quality of an ink coating or other substance; opposite of transparency. That property of paper, which minimizes the *show-through* of printing from the back side or the next sheet.

Open-End

An envelope with the opening on the short side.

Open Panel

A term used when any envelope with a window does not have any type of clear window patch material affixed over the window opening from the inside the envelope.

Open-Side

An envelope with the opening on the long side.

Outside Side Seam

A side seam that is glued to the outside of the envelope rather than to the inside.

Oxidation

The deterioration of the adhesive film due to atmosphere exposure. Normally a concern with latex and some pressure sensitive adhesives.

Patch

Glassine or synthetic film that forms the transparent window in an envelope.

Patch Gum

The adhesive that adheres the window patch in place.

Permit

An authorization required for specific types of preparation or postage payment. For example, an authorization to mail without postage affixed by using permit imprint indicia.

Picking

A lifting of the paper surface during printing. This occurs when pulling force (tack) of the ink is greater than the surface strength of the paper.

MS Chart

The Pantone® Color Formula Guide. A book showing samples, names or numbers and printing ink mixing formulas for Pantone colors.

Pantone Color

PMS stands for Pantone® Matching System, a trademark of Pantone, Inc. PMS colors are usually identified by a three or four digit code number, which helps printers and their clients to communicate using a common standard when specifying colors and inks.

Policy Envelope

An open end style with the same dimensions as a #10 through a #14 commercial envelope.

Poly Window

An envelope window made from polystyrene, a translucent film noted for its superior flexibility and resistance to changes in humidity. Poly is manufactured from select wood pulp and is calendered under extreme pressure for transparency. The resulting material does not warp or become brittle.

Post-Consumer Content

The percentage of recycled materials that have been used by the final consumer. These materials must have been collected from schools, offices and homes. They have been de-inked and repulped for use in the papermaking process.

POSTNET Barcode

POSTal Numeric Encoding Technique – The barcode used to encode ZIP Code information on letter and flat mail. This barcode is printed on the lower right portion of the face of an envelope. POSTNET translates the Zip Code information into a barcode that can be read by automated postal scanners for faster and more efficient mail sorting.

Pre-Consumer Content

The percentage of recycled materials that represent wastes that were reclaimed during or after the manufacture of paper or paper products before they were used by a consumer. For example, cuttings and trimmings from an envelope plant are always recycled back to the paper mill. When reused in papermaking, these materials are classed as pre-consumer content.

Pressure-Sensitive Paper

Material with an adhesive coating protected by a backing sheet until used.

Print Contrast Ratio (PCR)

The contrast between the ink used in the address and the background of the mailpiece. Expressed as a percentage, PCR is the reflectance of the background minus the reflectance of the ink divided by the reflectance of the background multiplied by 100.

Print Reflectance Difference (PRD)

The background reflectance minus print reflectance, expressed as a percentage.

Proxy Envelope

A booklet style envelope with either an inside pocket affixed on three sides behind a window, or one with separate commercial type envelope affixed to the outside. The proxy envelope is used to mail annual reports along with proxy voting cards to corporate stockholders.

Pucker

The wrinkle of substrates. (May apply to window film pucker.)

Qualified Business Reply Mail (QBRM)

An automated method for sorting, counting and rating business reply mail (BRM) for authorized mailers.

Rag Paper

Paper with some rag stock or cotton linters. Such a paper is usually of high quality and is frequently difficult to adhere. Rag-content paper usually varies from 25 to 100 percent rag fibers.

Recyclable

This term identifies a product or substance as theoretically capable of being recycled into new products. The term does not imply that the product itself actually contains any recycled fibers or materials.

Recycled Paper

Paper that contains fibers obtained from previously manufactured paper that has been cooked and reduced back again into pulp. Recycled papers may contain either pre-consumer or post-consumer content or both.

Regular

A term used to describe any commercial envelope that does not have a window.

Remittance Envelope

A booklet or side seam style envelope with a long wallet type seal flap covering most of the back of the envelope. Used as a collection envelope. Most common sizes being of the commercial and official sizes #6 1/4, # 6 3/4, and #9. Boxed with flaps extended.

Resin Gum

(Resin containing gum). A gum containing a synthetic polymer, usually polyvinyl acetate or various copolymers.

Safety Fold Envelope

An open side, center seam envelope with a large wallet flap and a high throat designed to fold over with the flap to increase the security of the contents.

Seal Gum

Any adhesive applied to the seal flap of the envelope in order to achieve a seal. See closures.

Sealock Flap

A tapered flap used on commercial envelopes.

Seam Gum

The adhesive applied to an envelope that can be moistened, returning the gum to a tacky state, enabling permanent closure of the envelope.

Shoulder

The top edge of the side flaps at the envelope opening.

Side Flaps

Fold in from the sides to form the sides of the envelope.

Side Seam

A seam that runs perpendicular to the envelope opening.

Side Seam Inside

The term applied to the side seam when it folds UNDER the bottom flap.

Side Seam Outside

The term applied to the side seam when it folds OVER the bottom flap.

Solid Gumming

Seal gum that extends completely across the flap without interval spacing.

Special

A very general term used to describe any envelope that is not of a standard size, window position, or paper grade.

Split Gumming

Seal gum that is spaced at intervals on the flap of the envelope.

Split Seal

Seal gum pattern that has voids in application over those areas where the seal gum would otherwise rest on top of the seam of a folded envelope. Usually done to avoid possibility of tabbing.

Standard Mail

A class of mail consisting of mailable matter that is not required to be mailed as First-Class Mail or is not mailed as Periodicals and weighs less than 16 ounces. It comprises the subclasses of Regular Standard Mail, Nonprofit Standard Mail, Enhanced Carrier Route Standard Mail and Nonprofit Enhanced Carrier Route Standard Mail. These subclasses include circulars, printed matter, pamphlets, catalogs, newsletters, direct mail and merchandise. Standard Mail may be sent at presorted rates and at automation rates.

Straight Grain Cutting

Cutting the blanks for an envelope so the grain of the paper runs parallel to the folds.

Substance Weight

The basis weights adopted as standard numbers of all kinds of paper. In the envelope trade, the weight is for 500 sheets (a ream) 17" wide by 22" long. Twenty pound paper (Sub. 20), for instance, means 500 sheets 17" x 22" weighs 20 pounds.

Tabbing

Premature blocking of the seal only above the seam. May be bad enough to tear paper but frequently just enough to hold the flap down. Tabbing is usually attributed to excessive seam gum but sometimes the seal gum itself is involved.

Tack

Tack, remoistening is the ability of a seal gum to become "tacky" when moistened and result in a fast tearing bond.

In printing inks, the property of cohesion between particles; the separation force of ink needed for proper transfer and trapping on multicolor presses. A tacky ink has high separation forces and can cause surface picking or splitting of weak papers.

Throat

The opening at the top of the envelope. The size of the throat is measured from the top edge of the bottom flap to the fold line of the seal flap.

Thumb Cut

A rounded opening cut through the back, front, or both sides of an envelope opening to facilitate the removal of its contents.

Tooth

A characteristic of paper, a slightly rough finish, which permits it to take ink readily.

Tyvek

A synthetic paper made of spunbonded olefin by the DuPont Corp. It is an ultra-lightweight, tear proof and water proof "paper" which when converted into envelopes can accommodate heavy, bulky, and highly confidential mailings. Although Tyvek has countless uses, 14 lb. and 20 lb. stock is used for envelope converting.

Undertone

The color of a thin film of ink, as seen on a white background. The appearance of ink when viewed by light transmitted through the film.

Vehicle

The liquid portion of ink that holds and carries the pigment, and provides workability and drying properties, and binds the pigment to the substrate after the ink has dried.

Vellum Paper

Paper with a toothy finish similar to an eggshell or antique finish. Vellum is relatively absorbent for fast ink penetration.

Viscosity

The resistance to flow of a liquid. Also, the thickness or thinness of gums.

Virgin

Virgin refers to paper with no recycled materials at all.

Wallet Flap

A type of seal flap that is deep and square in shape.

Warp

The diagonal bow or lack of layflat of an envelope.

Watermark

A subtle design embedded in the texture of the paper itself. This design that is formed in the manufacturing process, can be seen when the paper is held to the light.

Web

A roll of paper feeding directly into the folding machine. A web machine is machine fed from a web of paper rather than from diecut blanks.

Web Converting

Cutting, folding and gluing envelopes from continuous rolls of paper rather than from precut envelope blanks.

Web Cut

Any envelope manufactured by means of feeding a continuous roll of paper into an envelope machine which cuts the envelope blanks individually with in-line rotary knives. The most common web-cut envelope style is of side seam construction.

Web Envelope

An envelope that is manufactured using web converting technology.

Web Press

Any one of several types of presses that print from continuous rolls of paper rather than relying on a sheet fed process.

Window

The open blanked out area of an envelope that allows one to read the information or address in the contents of an envelope.

Wire Side

The side of the paper that was next to the wire during manufacturing. Opposite of the felt side.

Wove Paper

The side of the paper with a soft, smooth uniform surface and a very faint cloth-like appearance when held to the light.

Zip + 4

A nine digit zip numeric code incorporating the original five-digit ZIP Code, a hyphen, and four additional digits. The first five digits identify the delivery office. The four-digit add-on identifies a specific delivery segment such as a city block face, a floor of a building, a department within a firm, range of rural route box numbers or a group of post office boxes.

