

# Making Outerwear with Down or Polyester Fiberfill

## Guide C-230

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Sewing outerwear is different from sewing more conventional garments. It's certainly much easier than sewing a tailored jacket: there is no interfacing and the zippers are exposed. Sewing outerwear can also be fun and creative—and you will have a garment that doesn't look like a hundred others.

Sewing outerwear may be less expensive than buying it, saving 50 percent or more on the retail price. Materials for garments may be purchased in kits or as individually selected yardage. You may find that a kit will be less expensive. However, if you choose not to use a kit, be sure the necessary insulation material and notions are available.

### KITS

There are two basic types of outerwear kits: precut and uncut. The precut kit comes with all the necessary notions and fabric already cut to size. Each piece is illustrated on the sewing instruction sheet with notches or clips to help match pieces before stitching. The outer fabric, lining, and interlining (if used) are each of a different fabric, easily distinguishable from each other.

The uncut kit provides all the necessary notions, fabric, pattern, and layout and cutting instructions. Each type of fabric is marked to indicate its role. One advantage to the uncut kit is that it allows for pattern fitting and alterations if necessary. Also, uncut kits are usually less expensive than precut kits.

### PATTERNS

When purchasing a pattern and yardage, consider the types of patterns available. The major pattern companies have only a limited number of basic patterns for men's, women's, and children's parkas, vests, and ski suits. Pattern companies specializing in outerwear have a wider variety of patterns that are more creative in design.

Most specialty patterns are printed in multiple sizes. By tracing the size to be used on another paper

before cutting, the master pattern can be used for a variety of sizes.

Select patterns by the size you usually wear. Outerwear patterns allow ease for the garment to fit over other clothing. Be sure to check the pattern's fit and make any necessary alterations before cutting the fabric.

### FABRIC

The variety of fabrics available for sewing outerwear is virtually unlimited, but some fabrics are used more often than others.

*Nylon* is a continuous filament yarn that is lightweight, tough, and elastic. Because it can be woven very tightly, nylon tends to repel water. It is used almost exclusively in outerwear. Some disadvantages include a tendency to ravel and a slippery surface, which make sewing difficult.

*Cotton*. Long staple cotton is used in outerwear fabric. It is absorbent, but not very strong, and it may tend to mildew. Cotton blended with nylon or polyester is a good choice for some outerwear items.

*Polyester* is a strong, wrinkle-resistant fiber. It is durable against ultraviolet radiation, which can be damaging at high altitudes or when exposed to sun over long periods.

Construction of the fabric is as important as the fiber used. Two types of weave are popularly used in outerwear.

*Plain weave*. Individual threads cross over each other at right angles to form a flat, tight weave. Nylon taffeta and ripstop are used most often in outerwear. Variations of plain weave fabrics such as basketweave, oxford cloth, duck, and poplin are all popular for outerwear. Each of these fabrics will vary in weight according to the ply of the threads used. Ply refers to the number of filaments or yarns twisted together to form one thread. For example, 2-ply nylon ripstop is lighter than 3-ply nylon ripstop. Normally, the heavier the fabric, the tougher it will be.

*Diagonal weave*. One thread crosses over two or more threads. Twill, denim, drill, and whipcord are

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examples of diagonal weaves. Diagonal weaves are strong, but may have poor abrasion resistance. These fabrics vary in weight depending on the ply of thread used. Fabrics in which the threads pass over more than two or three threads will usually wear more quickly than a plain weave fabric.

When selecting fabric for outerwear, consider the following characteristics.

*Porosity* is a fabric's ability to allow air to pass through. Low-porosity fabric will keep out water and wind, and will also help prevent down or other insulation from leaking through the fabric.

To check the porosity of a fabric, hold a sample against your mouth and blow through it. If the air is contained, the fabric has low porosity. Another way to check is to hold the fabric up to strong light and observe the amount of light that shows through. Except for rainwear, outerwear fabrics should allow some porosity for body moisture to evaporate. If a fabric is non-porous, body moisture will collect on the inside of the garment and create a clammy, wet feeling.

*Water-repellent* fabric resists water. All nylon fabrics are water repellent because the fibers do not absorb water. However, moisture will seep through the threads if exposed to water for a long time. Some fabrics are specially treated with a polymer to make them more water-repellent, but they are not waterproof.

*Waterproof* fabric has the ability to withstand water. Such fabrics have a heavy coat of polymer. All seams in a garment of waterproof fabric must be sealed or water will leak through along seamlines.

*"Wet-look."* A special fabric finishing process or a plastic coating on fabric gives it a shiny appearance. Studies show these fabrics can contribute to seriousness of skiing accidents because the slippery finish allows a fallen skier to slip over snow rapidly and hit obstacles with more force. Some ski areas prohibit skiing in "wet-look" garments.

A wide variety of fabric colors and designs are available in all weaves and weights. Select a fabric with a finish suitable for the garment to be made. Whatever fabric you select, be certain it is durable and comfortable to wear.

## INSULATION

When you are selecting garments for outdoor activities in cold weather, remember that warmth is the key to survival, protection, and enjoyment. However, ease of movement and fashionable designs are also important to the outdoor enthusiast. The insulation material you choose will be an important factor in all these areas.

When selecting insulation material for outerwear, consider the following questions:

- How cold is the environment?
- How wet is the environment?
- How windy is the environment?
- Will the wearer exercise heavily or lightly?
- How much heat and moisture will the wearer's body give off?

Answers to these questions will help determine the type and amount of insulation needed.

*Down* is a natural insulator. Open spaces in the down pods trap air and form "dead air space," which keeps body warmth from escaping. Down is the warmest insulation for the weight. It breathes, absorbing moisture and dispelling it to the outside where it evaporates. It is resilient, shapes itself to the wearer's body, and is easy to keep clean.

Down use for outerwear kits is regulated by government standards. Generally, down garments are composed of 85% down and 15% feathers, though you may find garments containing as much as 20% feathers.

There are some disadvantages to using down. It is expensive and can collect dust, which causes allergic reactions in some people. Down is difficult to contain: it drifts easily into the air and must be encased in down-proof lining or outer fabric to prevent leakage. To maintain even insulation, down must be correctly distributed in the garment before topstitching. When garments become wet, down maintains only about 10% of its insulating quality, takes a long time to dry, and can mildew if dried improperly. Down garments must be stored carefully—if it is crushed or left in a tight wad for a long time the down will lose air space, decreasing its insulating capacity.

The synthetic fiber most popularly used for insulating outerwear is *polyester*. Some polyester insulations are made of filament fibers, while others are shorter-staple fibers. Both are lightweight, wash easily by hand or machine, and dry quickly. Polyester does not absorb moisture, so it does not transfer body moisture unless it has been specially treated. This non-absorbent characteristic can be a plus in outerwear: when wet, it does not compact and maintains about 80% of its insulating capability. Other advantages are its mildew resistance and non-allergenic properties.

Polyester insulation for outerwear comes in sheets that are cut and sewn like fabric. The insulation may be machine quilted at home, or it can be purchased already quilted to a down-proof fabric. In either case, the cost is less than down.

Compared to down, polyester is less resilient, heavier, does not shape as easily, and does not warm up as quickly.

## NOTIONS

Having the notions included is one of the advantages of sewing from a kit. A garment kit may contain a big zipper, grippers, Velcro® fasteners, D-rings, knitted cuffs, drawstrings, pocket fabric, and thread. All will be color coordinated and suitable for the garment. Name, size, and care labels are also often included.

Finding matching and appropriate notions is difficult when you aren't sewing from a kit. Big zippers used in outerwear are hard to find in local fabric stores; cuffs and Velcro® will probably not be color coordinated; and down is not readily available even in the largest of sewing centers. If you are planning to sew a non-kit outerwear item, locate all notions and supplies before purchasing the pattern or fabric.

## EQUIPMENT

Most of the sewing equipment required for making outerwear is the same as for any sewing project. Be sure the sewing machine is in good working order and that shears or scissors are sharp. Pins, large sewing machine needles, a zipper foot, and a tape measure are standard equipment. Have a hem gauge or ruler, pencil, and safety pins handy. Pressing equipment should be set up near the sewing center.

Special equipment for sewing outerwear includes:

- A candle and matches or an easy-to-use soldering iron for searing seam allowances.
- A small paintbrush for sealing seams.
- A small amount of petroleum jelly or cornstarch for helping fabric move easily under the presser foot. A teflon or roller foot may also be useful for problem fabrics.
- A hammer or special tool to set grippers.

## TECHNIQUES

Before beginning the project, read the instruction sheet completely, making sure you understand the sewing procedures. Check all the garment pieces and notions and stack them in order of use close to the sewing machine.

### Searing Seams

The first step in constructing most outerwear is to sear all edges of nylon fabric as well as the ends of any nylon lacing and strapping. Searing prevents the fabric edges from raveling as the garment is sewn, worn, washed, or dry cleaned. (Coated fabrics do not require searing.)

For searing seams, you will need a special place away from the immediate sewing area. Protect the surface on which you work in case you spill candle wax or do not discard burned matches carefully. If you use a soldering iron, locate it close to an electrical outlet and provide a rest for the hot soldering iron. Be sure the work area is well ventilated.

To sear fabric edges, place a candle in a holder. Hold the edge of the fabric taut between your hands and pass the fabric across the flame. Set the fabric just close enough to melt the very edge of the fabric. Continue to hold the fabric taut as it cools (2–3 seconds) or the edges may shrink.

As you work, avoid breathing the fumes—they can irritate nasal passages.

### Seams

The types of seams used are:

*Plain.* Place fabric right sides together with edges even. Join the edges by a line of stitching at a specified distance from the edge, usually 1/2–5/8" (1.5 cm).

*Rolled.* Place fabric right sides together, with edges even. Fold edges to one side 1/4" (1 cm), then fold again another 1/4" (1 cm) and stitch through the center of the roll.

*Felled.* Place fabric wrong sides together, with edges even or one edge may set back 1/4" (1 cm). Stitch a plain 1/2–5/8" (1.5 cm) seam. Press. If edges were even to start, trim one edge off 1/4" (1 cm). Then fold the longer edge over the shorter, fold down flat, press, and stitch the edge.

*False felled.* Place right sides together, edges even. There are two methods: 1) Stitch a plain seam. Fold seam to one side, press, and stitch edge down. 2) Make a rolled seam stitching close to the edge rather than in the center of roll. Open fabric out flat and stitch down the other edge of roll.

*Lapped.* Turn the edge of one piece of fabric under to the wrong side; press. Place over the edge of the other piece of fabric (right side up) and stitch the edge.

*Turned in.* Place fabric wrong sides together, edges even. Turn both edges to the inside and press. Stitch along the folded edge.

*Corded.* Make cording. Place cording on right side of fabric, cord facing in, and edges even. Place second piece of fabric on top, right sides together, edges even. Stitch plain seam using zipper foot as close to cording as possible.

*Bound.* Make plain seam. Cover raw edges of seam by folding a piece of tape around them. Stitch edge of tape down to the seam allowance.

*French.* Place fabric WRONG sides together and sew edges with 1/4" (1 cm) plain seam. Fold along

stitching so fabric has RIGHT sides together, push the seam out tight against stitching, press and sew again with 1/4" (1 cm) plain seam. The raw edge will be completely enclosed inside the seam.

### Pressing

Press the outside fabric to smooth seams. Do not press seams open unless the instruction sheet suggests—open seams may allow wind and water to leak into garment. Use a warm, not hot, iron. Use a presscloth to prevent unwanted fabric shine.

### Quilting

Mark the quilting lines carefully. Match interlining and lining edges carefully, pinning only in the seam allowances. Use few, if any, pins inside the edges of coated fabrics; holes will allow water and wind to leak in. Sew along quilting lines; a quilting foot can be used to space stitching lines correctly. Be careful to keep stitch length and tension uniform during quilting.

### Topstitching

Decorative topstitching can be done using polyester buttonhole twist or two strands of regular sewing thread. The stitch should be longer than the regular stitching length, and is usually placed 1/8" (.5 cm) from the edge. Stitch slowly to keep the line straight. Cellophane (transparent) tape can be used to keep stitching uniformly straight and an even distance from the edge.

### Hems

There are three types of hems:

*Single Hem.* Turn the edge of the fabric (only once) the specified amount to wrong side. Press and stitch.

*Double Hem.* Turn the edge of the fabric 1/4" (1 cm) to the wrong side, turn again the specified hem amount. Press and stitch.

*Reversible Hem.* Turn both hem edges to the inside and press so the folded edges are even. Then stitch twice—once on the very edge and a second time the depth of the hem.

## OTHER HINTS

- Sew all seams and topstitching directionally to prevent unattractive pulling along stitching lines.
- Use a dressmaker's pencil or tailor's chalk to mark features such as quilting lines and pocket locations. Pencil lead or ballpoint ink often do not wash out.
- As you begin stitching a seam, pull the thread ends gently to prevent knotting beneath the seamline.
- When sewing polyester insulation in place, be sure to sew with insulation down and fabric up.
- Sew stretch fabrics (such as knitted cuffs) with a stretch stitch, or loosen the tension and shorten the length of regular straight stitching.
- Keep your work area clean and orderly, especially when quilting fabric. A crowded sewing area will not facilitate straight stitching.
- Place masking tape or adhesive tape on the throat plate to clearly mark seam allowances.
- After the garment is complete, spin it in a dryer at moderate heat for 10–15 minutes. This will fluff the insulating material and remove fabric wrinkles.

## ADD A PERSONAL TOUCH

Adding a personal touch will turn a basic pattern or kit into an individual design. Consider adding yokes, appliqués, embroidery, contrasting accents, or fur. Optional quilting designs and simple style changes such as a different pocket style, shorter or longer hemlines, banded cuffs or waistline, or specialty closures may be used to create an outerwear fashion especially for you!

## REFERENCES

Frostline, Inc. *The Fact Book*. Boulder, 1977.

Lyle, Dorothy. *Modern Textiles*. New York: John Wiley and Sons, 1976.

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