



Supplies and Resources

SUPPLIES

These supplies are typical for full-band bras. Refer to your pattern for specific yardage requirements and notions.

- Unpadded full-band bra pattern (e.g., Pin-Up Girls Classic, Elan B645, Kwik Sew K2374)
- Cup, frame, and strap fabric: Stable knit with less than 20 percent stretch
- Band fabric: Stretch knit or mesh with 25-40 percent stretch
- Upper cup lace fabric or trim (optional)
- Neckline edge trim
- Bottom band elastic: $\frac{1}{2}$ " – $\frac{3}{4}$ " (13 mm–19 mm) wide
- Top band elastic: $\frac{3}{8}$ " (9 mm) wide
- Strap elastic: Any width
- Slider and ring set: Same width as strap elastic
- 2 x 3 or 3 x 3 hook-and-eye set
- Neckline stabilizer: Stay tape or twill tape (optional)
- Channelling/wire casing
- Underwire pair

SUPPLY CARD FOR BRA

Name:								
Pattern Size:								
Cup Fabric:					Lace:			
Band Fabric:	1 ply		2 ply		Quantity:			
Stabilizer:								
Padding (optional):								
Bottom Band Elastic:	Width:				Quantity:			
Channelling:								
Top Band Elastic:	Width:				Quantity:			
Neckline Edge Trim:								
Strap Elastic:	Width:				Quantity:			
Strap Tape:	Width:				Quantity:			
Sliders & Rings:	Metal	Plastic	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	1"
Hooks & Eyes:	1 x 3		2 x 3		3 x 3		4 x 3	
Underwires:	Size:		Regular		Long		Extra-Long	

RESOURCES

- braandcorsetsupplies.com
Beverly's website and home of her pattern line, Pin-Up Girls. Offers a complete line of fabrics, findings, notions and patterns for bras and other intimate apparel.
- *The Bra-Maker's Manual* (Turtle Press, 2005)
Beverly's book on bra-making, offering a complete

guide to bra design, drafting, construction and fit, available from her website.



Choosing Bra Patterns and Supplies

PATTERNS

Choose a basic, unpadded full band bra pattern. A full band bra's front band, or frame, continues around and under the cups and supports them. You can choose to insert an underwire or not.

Beverly demonstrates in this class with the Pin-Up Girls Classic bra. Other pattern options include Elan B645 and Kwik Sew K2374.

When you are ready to try different bra constructions and styles, check out Beverly's pattern line, Pin-Up Girls, which has a full range of bra and other lingerie designs.

UNDERSTANDING STRETCH FABRICS

Full band bras offer cantilevered, not suspended, support—the weight of the breasts is transferred down to the ribcage by the bra's cups and body-hugging band. Fabrics and elastics of varying stretch are used to increase the bra's supportiveness and wearing comfort. Your pattern may provide guidance on stretch percentage and direction alongside recommended fabrics.

Stretch can be mechanical, elastic, or both. Mechanical stretch is vertical or horizontal (length or cross grain) "give" inherent to the fabric's structure; in general, wovens have very little or no mechanical stretch while knits have a little to a lot. Elastic stretch is true stretch and recovery in either or both directions, created by the inclusion of elastic yarns. The most common elastic fiber is spandex, also known as elastane or by the trade name Lycra.

Stretch percentage describes how much the fabric stretches as a percent increase from unstretched to fully stretched. For example, a fabric that measures 10" unstretched and 11.5" stretched has 15% stretch, while a fabric that measures 10" unstretched and 15" stretched has 50% stretch. To find stretch percentage, multiply the gain in length when stretched by 100 and divide the result by the unstretched length.

Stretch direction describes where the fabric stretches. Stretch fabrics may stretch only vertically (on the length grain); only horizontally (on the cross grain); or both vertically and horizontally. In general, stretch direction only refers to horizontal and/or vertical stretch; mechanical give along the bias is not a separate direction of stretch

Classification of fabrics as "one-way," "two-way," and "four-way" or "all-way" stretch varies. One-way stretch usually means that only one direction stretches. Four-way or all-way usually means both directions stretch. Two-way is the least standardized; when paired with one-way it usually means stretch in both directions; when paired with four-way it usually means stretch in one direction. One-way and four-way are used throughout this class for clarity.

Direction of Greatest Stretch (DoGS) is the direction in which a fabric stretches most. In a one-way stretch fabric, the single direction of stretch is also the DoGS. In a four-way stretch fabric, the direction that stretches more (or with less deformation if of equal amount) is the DoGS. Use the DoGS to guide pattern piece layout as shown in the class.

FABRIC GUIDE

In a full-band bra, the cups, frame and straps can be made of almost any relatively stable fabric, with stretch or without. The band must be made of stretch fabric. For lingerie sewing's narrow seam allowances (typically 1/4"), knits are simpler to finish and can be more durable than wovens since they do not fray.

For a first full-band bra, Beverly recommends using a stable knit with less than 20% stretch for the cups, frame and straps, and a knit or mesh with 25–40% stretch for the band. Supportiveness is determined by fabric weight and stretch percentage; heavier and less stretchy fabrics are more supportive, while lighter and stretchier fabrics are less supportive.

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Choosing Bra Patterns and Supplies

Stable (low-stretch) fabrics (best for cups, frames, and straps) may have mechanical give but little to no elastic stretch.

- Duoplex: Strong support; no give; shiny and matte sides; available in fashion colors. Beverly's favorite for unlined bras.
- Simplex: Strong support; very little give; lightweight.
- Shiny simplex: Moderate support; some give; lightweight; high shine
- Cotton jersey: Moderate support depending on weight and give; less smooth under clothing; natural fiber.
- Rigid (non-stretch) lace: Moderate support; some give, lightweight; may require lining.
- Non-stretch wovens: Moderate to strong support; no give; can be more challenging to sew and fit.

Moderate stretch fabrics (best for bands) can be interfaced or used double when more support is needed. Tricot is often used as a generic name for four-way stretch knits.

- Powernet (also called power knit or girdle knit): Strong support; four-way stretch
- Satin powernet (also called Techsheen): Strong support; one-way stretch; commonly used in ready-to-wear lingerie
- Cotton and other jerseys with spandex: Moderate support depending on weight and stretchiness; usually four-way stretch
- Stretch satin: Moderate to light support depending on weight and stretchiness; one-way stretch; shiny and matte sides; best for smaller cup sizes
- Firm stretch lace: Light support depending on stretchiness; usually one-way stretch; interface as needed
- Microfiber tricot: Light support; four-way stretch; lightweight; very soft.
- Stretch mesh: Light support; two-way stretch; very lightweight; use double as a band for smaller cup sizes.

STABILIZERS

Fusible knit interfacings can be used to make a stretchy fabric more supportive.

Sheer cup lining is a lightweight, non-stretch nylon that can be used to stabilize cups, bridges, and straps or to line lace.

Stay or twill tape can be stitched in to stabilize along neckline and armhole edges, especially for large cup sizes.

WIRES, ELASTICS, STRAPPINGS AND TRIMS

Underwires shape and control the cup and add support, but are optional in a full band bra. When an underwire is uncomfortable, it's often because the entire bra is the wrong size — usually too small, with wire ends that poke into the breast. See notes in the Sizing and Fit section of these materials for more information about selecting the right pattern and wire size.

Channelling is a pre-made narrow tube of fabric, often plush, that encases the underwire. Whether or not you plan to wire the finished bra, channelling along the wire line is important to finish the seam allowances and shape the cup.

Band elastic has a soft wrong side for comfort against the skin and one picot edge. Use a width from $\frac{1}{2}$ "– $\frac{3}{4}$ " (13mm–19mm) for the band bottom and from $\frac{3}{8}$ "– $\frac{1}{2}$ " (9mm–13) wide for the band top. In general, wider widths will be more supportive and comfortable for larger cups. Usually available with latex and without. Standard knit elastic (not non-roll) can also be used.

Strap elastic has a soft wrong side for comfort against the skin and is available in many widths to match the straps of your bra. Sometimes available in colors.

Strap tape can be used instead of elastic for non-stretch straps or instead of fabric for the front of standard straps. Available in many widths.

Neckline trim can be any trim that appeals to you—stretch trims, narrow rigid laces, fold-over binding, anything you like that is comfortable against the skin. Note that after turning only a narrow edge of the trim will be visible.

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Choosing Bra Patterns and Supplies

HARDWARE

Slider and ring sets connect the fabric strap to the strap elastic and make the length adjustable. Available in metal or nylon and in many colors and finishes, with sizing that matches strap elastic widths.

Back hook and eyes are available with two or three hooks and as a continuous tape or as a pre-finished set with several eyes.

TOOLS AND NOTIONS

Standard sewing machines with an adjustable zig-zag stitch are used to sew bras, not sergers or other specialty machines. A three-step zigzag or serpentine stitch is useful but not necessary for attaching elastic; if this stitch is not available on your machine use a wide standard zigzag instead. Lightning stitch is useful if you have it for finishing the back scoop.

Stretch 75/11 needles will work for most stretch knits and wovens. Use a new needle on each project. If stitches skip, especially on mesh fabrics, try a universal 90/14 or ballpoint needle.

Water-soluble fabric markers are useful for marking notches without snips, sectioning seams as you attach elastic, and any other marking needs. Test to be sure the marker will wash out on your fabric.

Rotary cutters used on a cutting mat are great for cutting out bra fabrics. Use the smaller 28mm or 18mm size to get the most accurate cuts around curves and corners. If using shears, make sure they are very sharp. Beverly recommends using a fabric marker to trace pattern piece outlines directly onto the fabric and then cutting away the line with a rotary cutter.

Standard polyester thread should be used to sew bras. Experiment with finer threads for a more delicate look.

Pressing tools are essential to a professional finish. Beverly's favorite pressing tool for bras is a **pressing knob** made from a plain round newel post knob of unsealed, unfinished hardwood (available at hardware stores) screwed to a base.



Sizing & Fit

MEASURING AND CHOOSING A SIZE

Measuring for a bra should be done wearing your best-fitting non-foam cup bra. Hold the tape measure parallel to the floor and not twisted.

For Pin-Up Girls Patterns**Band Size**

- Measure high bust, pulling tape snug against the skin but not tight. Round up to the nearest even number to determine band size.

HIGH BUST MEASUREMENT	BRA BAND SIZE
29"-30½" (72.5-77.5 cm)	30
31"-32½" (77.5-82.5 cm)	32
33"-34½" (82.5-87.5 cm)	34
35"-36½" (87.5-92.5 cm)	36
37"-38½" (92.5-97.5 cm)	38
39"-40½" (97.5-102.5 cm)	40
41"-42½" (102.5-107.5 cm)	42
43"-44½" (107.5-112.5 cm)	44
45"-46½" (112.5-117.5 cm)	46
47"-48½" (119.4-123.2 cm)	48

Cup Size

- Measure fullest part of the bust with tape just tight enough to keep it from sliding, not snug. Subtract high bust measurement from full bust measurement, record the difference, and use the chart to determine cup size.

**DIFFERENCE BETWEEN
FULL BUST & HIGH BUST****CUP SIZE**

The same as your high bust	AAA
Up to ½" (1.3 cm) difference	AA
Up to 1" (2.5 cm) difference	A
Up to 2" (5 cm) difference	B
Up to 3" (7.5 cm) difference	C
Up to 4" (10 cm) difference	D
Up to 5" (12.5 cm) difference	DD or E
Up to 6" (15 cm) difference	DDD or F
Up to 7" (17.5 cm) difference	FF or G
Up to 8" (20 cm) difference	FFF, GG or H

For Other Patterns

Follow the pattern company's suggestions for measuring and choosing a size.

For All Patterns

Pattern size and ready-to-wear size may differ. If the difference is significant but you are usually happy with your RTW size, try making a trial bra in your RTW size and assess the fit. Because the diameter of the breast is the most important factor in size, cup fit is the most important to get right—the band is easy to adjust.

Cups are sometimes interchangeable for different size combinations, which is useful if you are outside a pattern's given range. For example, a 34G in Pin-Up Girls uses the same cup pattern as a 38F or a 42E. In general, for A, B, and C cups, go up one band size and down one cup letter (e.g., 34C, 36B, and 38A share cup patterns). For sizes above C, go up two band sizes and down one cup letter (i.e., 34G, 38F, and 42E share cup patterns). Refer to the pattern company for pattern- and size-specific advice; for Pin-Up Girls patterns, full conversion charts are available in Beverly's book, *The Bra-Maker's Manual* Volume 2.

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ANOTHER METHOD OF MEASURING FOR BRA SIZE

The way I prefer to do measuring to determine bra size, is to use the High Bust Measurement (above the bust but still under the arms), and add NOTHING to determine the band size. After measuring over 10,000 women, I still find I am far more accurate measuring the high bust rather than the rib cage. I simply round up or down the high bust measurement to the nearest even number. So a high bust measurement of 32" would be a 32 band, while a 35.5" high bust measurement would indicate a 36 band.

As I will be explaining in lesson 1, I then subtract the high bust from the full bust, with 1" of difference equaling A cup, B cup is 2", 3" is C cup and so on. That method of determining bra size works very well for most women. However, there are always women for whom taking body measurements do not tell the whole story. For them, and possibly you, I have another way of measuring – in fact, a sure-fire way of measuring, but the downside is that you have to have a bra that already fits to do this.

It is a method for sizing that I call the Bottom Cup Depth. The Bottom Cup Depth determines the overall volume of the bra cup. No other measurement is as important as this one. This is the distance from the bra bust point to the bra wire line measured on the true vertical. In a perfect world, the bottom cup depth on your bra should measure the same as the bottom cup depth on your naked breast, but it often doesn't – because of the breast density and degree of flaccidity. So you have to wear a bra that fits (not a foam bra, or a sports bra either)

The Bottom Cup Depth increases by 1/4" (6 mm) in not only my patterns and other commercial bra patterns, but this is also an industry standard.

Using the chart below, find the BCD in inches that corresponds to your own Bottom Cup Depth (measuring the bra from the nipple to the wire line directly below it. On each line, you will find the Classic bra sizes that correspond with that BCD.

If you are using another bra pattern other than the Classic, check the BCD on your ready-to-wear bra against the pattern that you have. Make sure you are measuring between the seam lines, and not including the seam allowances. If the Bottom Cup Depth of the bra pattern is the same as yours, then you can shorten or lengthen the band as needed. I will show you how to do that in the lesson on Fitting the Band.

Do not be discouraged if your ready-to-wear bra size and your bra pattern size are not the same. If the Bottom Cup depth is the same, the cup will fit the same way.



BC DEPTH		BRA SIZES THAT USE THIS BCD				
2.25	30A	32AA	34AAA			
2.50	30B	32A	34AA	36AAA		
2.75	30C	32B	34A	36AA	38AAA	
3.00	32C	34B	36A	38AA		
3.25	30D	34C	36B	38A		
3.50	32D	36C	38B	40A		
3.75	30E	34D	38C	40B	42A	
4.00	32E	36D	40C	42B	44A	
4.25	30F	34E	38D	42C	44B	46A
4.50	32F	36E	40D	44C	48A	
4.75	30G	34F	38E	42D	46C	48B
5.0	32G	36F	40E	44D	48C	
5.25	30H	34G	38F	42E	46D	
5.5	32H	36G	40F	44E	48D	
5.75	34H	38G	42F	46E		
6.0	36H	40G	44F	48E		
6.25	38H	42G	46F			
6.5	40H	44G	48F			
6.75	42H	46G				
7.0	44H	48G				
7.25	46H					
7.5	48H					



SIZING UNDERWIRES

Underwires should fit flat against the chest wall with no gaps under or around the breast when the arm is raised. The underwire establishes and represents the diameter of the breast tissue.

Underwires are sold by bra size (band and cup) or by wire size. Larger wires are longer, since they are shaped for the larger circumference of a larger-diameter breast. Select a wire based on the bra pattern size or by using your pattern's guidelines if additional information is given. Patterns can usually accept one wire size lower or higher than the suggested size.

Wires are usually also available in different front lengths for different styles of bra and can vary in shape according to intended function. The most common wire length, used in most full-band ready-to-wear bras and patterns, is Long, but patterns can be altered to use a different length. Wires can be shortened when necessary with wire cutters; round off the resulting sharp end with a file and create a cap over the cut end with a heat-shrink tube or by dipping in a sealant or coating like Household Goop or Plasti Dip until the layers create a protective cap.

Many manufacturers provide charts with actual-size drawings of each wire size that can help choose a size. The included example charts are for long wires from Bra-Makers Supply. Print the charts at 100 percent scaling, mount on card stock or oak tag, and cut to create a gauge that can be tried on around the breast. The correct size will encircle the breast and fit against the chest wall with no gaps when the arm is raised. Alternatively, if you have an old full-band bra with an underwire that fits you well, check it against the drawings. If the wire size that fits best suggests a different pattern size than you think you need, consider at least making a test bra in that size.

BRA FIT CHECKLIST

Once you've worn a bra that fits perfectly, you'll never settle for anything less. The difference in support, comfort, and figure flattery between a ready-to-wear bra that fits fine and a custom-fitted bra that fits perfectly is amazing. Look for these signs of good fit:

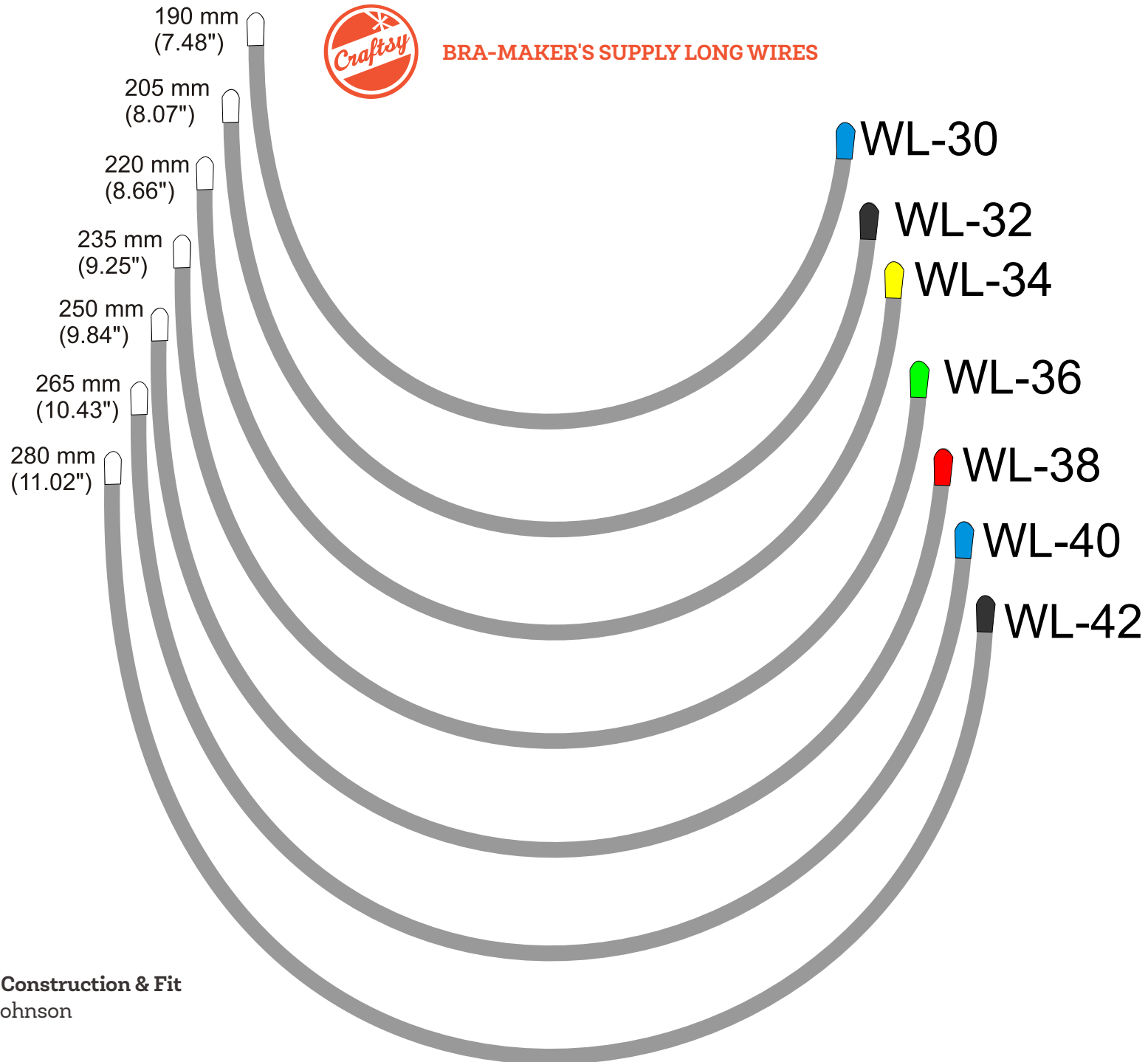
- Band level around the body — not riding up in the back
- Bridge sits flat or very nearly flat against breastbone
- Wires encircle breast mound without poking or protruding and are flat against chest wall
- Breasts completely fill cups without wrinkling or overflowing
- Straps are only tight enough to stay on the shoulder and do not suspend the weight of the breasts. Relying on straps for support can eventually cause arm and lower back problems in larger-breasted women; a bra that fits cantilevers support upward from the band.
- No flesh bulging out of the bra anywhere

FIT SOLUTIONS

- If the cups fit but the band is too short, split the back band from top to bottom and spread by half of the needed distance. Blend along the top and bottom to smooth edges.
- If the cups fit but the band is too long, split the back band from top to bottom and slide one side over the other, overlapping the two halves by half the needed amount. Blend along the top and bottom to smooth edge.
- If the band fits but the cups are too small, go up one cup size; i.e., from a 36B to a 36C.
- If the band fits but the cups are too large, go down one cup size; i.e., from a 38C to a 38B.
- Adjust the fabrics and elastics used in the bra to provide more or less support as needed.
- Customize cup shape to your figure as shown in the class.



BRA-MAKER'S SUPPLY LONG WIRES



Note: To ensure printing accuracy, please print PDFs from Adobe Reader (available for free download at get.adobe.com/reader). Print at "Actual size."

Sewing Bras: Construction & Fit
with Beverly Johnson

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BRA-MAKER'S SUPPLY LONG WIRES

295 mm
(11.61")

310 mm
(12.20")

325 mm
(12.79")

340 mm
(13.38")

355 mm
(13.97")

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WL-44

WL-46

WL-48

WL-50

WL-52

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BRA-MAKER'S SUPPLY LONG WIRES

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- 54 370 mm (14.56")
- 56 385 mm (15.15")
- 58 400 mm (15.74")
- 60 415 mm (16.33")

WL-54

WL-56

WL-58

WL-60