Ask a Builder

What energy-efficient lighting options exist for the sun-bereft winter residents of the North?

You've probably heard about the benefits of compact fluorescent lights (CFLs). They fit into a conventional lamp socket, but look like soft-serve ice cream twists. Modern CFLs come in a variety of intensities and can duplicate the "soft" hue of incandescent bulbs while using a small fraction of the electricity consumed by old-fashioned bulbs. CFLs may cost three to four times more than light bulbs, but they last four to ten times longer. While other emerging technologies such as light emitting diodes (LEDs) promise even more benefits over conventional bulbs in the not-too-distant future, today CFLs are your best option for cost-effective lighting.

Very little is intuitive when shopping for CFLs. Power consumption, which directly correlates to a CFL's intensity, is the best advertised detail, and is usually written front and center on packaging. Just 23 to 29 watts in a CFL is enough to replace a standard 100 watt bulb. In general, match a CFL's wattage to one-quarter of the incandescent bulb you are replacing for the same amount of light. Sometimes, CFLs are measured in lumens. A 100-watt incandescent lamp emits about 1,750 lumens. If you need a dimmable CFL be sure it is labeled that way; the same goes for three-way CFLs.

Light Gets Heavy.
It gets more complicated if you're interested in achieving a certain quality of light. Some people spend hundreds of dollars on special "full-spectrum" lights. Full-spectrum is a marketing term, not a standard scientific term. It refers to spectral power distribution (SPD). CFLs that radiate energy relatively evenly across the visible wavelengths of light are said to be full-spectrum. Hard data on the health effects of full-spectrum lighting is hard to come by, in part because its benefits are a matter of subjective experience. Nevertheless, a level SPD is preferable if for no other reason than appearance.

We are used to thinking of lighting as "warm" or "cool." Warm lighting is yellowish in color and often preferred for relaxing at home, while cool lighting is more bluish and used for task work or, in the case of wintertime in Alaska, to brighten our moods. In addition to intensity and SPD, CFL performance is commonly expressed in correlated color temperature (CCT), which is measured in degrees Kelvin (K). Cool light measures higher in Kelvin than warm light. Most incandescent bulbs at home are 2700 K to 3600 K, but CFLs can simulate the color temperature of sunlight at 5300 K or greater.

Finally, some manufacturers label how colors appear when illuminated. This measurement is called the Color Rendition Index (CRI). CRI is a scale of 1 to 100 that estimates a light source's ability to show colors the same way that sunlight does, with 100 being a theoretical perfect match. In general, a CRI of 80 or greater is considered good, with scores higher than 90 considered excellent. Sometimes designated as "high-definition," these specially marketed lights can be costly, but ordinary store brand CFLs can offer relatively high CRI scores and a "daylight" color temperature for only a few dollars each. You just have to spend some time reading the labels.

Beware of Mercury
Not all is swell with CFLs. CFLs contain mercury, which is a deadly poison. Although CFL mercury levels are relatively low – typically about 5 mg per unit – they must be disposed of consistent with hazardous waste precautions, or recycled if possible. For example, Home Depot will recycle old CFLs. If you break a CFL, the broken glass will mix with mercury you cannot see and white phosphorus powder. Be careful to clean up the mess wearing gloves and use a damp disposable towel to scoop the shards and residue into a sealed plastic bag.