



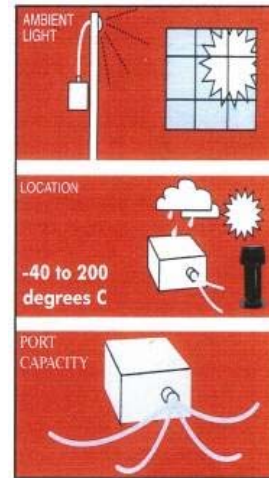
## The Fundamentals of Fiber Optic Lighting

When selecting fiber optics for a lighting project, you must carefully consider the end result you are trying to achieve. Although fiber optic lighting offers unique flexibility compared to conventional lighting, it does have its limitations. Areas of high ambient light should be avoided as they tend to “wash out” the color. However, you will find in many cases, that fiber optics can be installed in areas not accessible to conventional lighting.

**Brightness:** Brightness perception is dependent upon several factors such as color, background, contrast ratio, viewing angle and ambient light conditions. If brightness is critical, then the illuminator model and strand count in the cable are important. The 150-watt metal halide illuminator is approximately 10 times brighter than the 75-watt model and the 575-watt illuminator is 3.5 times brighter than that. Also, the greater the number of cable strands, the brighter the end result.

**Location:** Most illuminators are approved for indoor or outdoor use. Some models, however, are indoor only. Adequate ventilation is important for all models. The fiber optic cable is UV protected so it may be installed almost anywhere.

**Port Capacity:** The harness holds the fibers in place at the light box. The maximum number of fibers varies according to the light box model. Always take into account the port capacity when choosing an illuminator. Remember, perimeter fiber works best when looped in and out of the light box. Therefore, you must double up the strand count on perimeter cable.

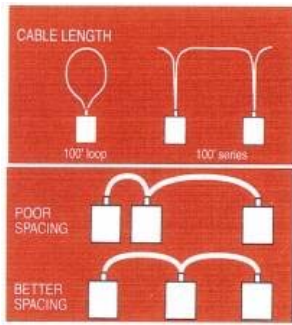


**Sidelight Cable:** Optical fibers glow like neon along their length. However, unlike neon, the cable is virtually unbreakable and is extremely energy efficient. Safety, maintenance and operation cost should also be taken into consideration when making a comparison between fiber optics and neon

This chart will give a general idea of the benefits of sidelight fiber optic cable compared to neon. It does not take into account the electrical utility cost of neon over fiber. On average, neon will cost 3 times as much as fiber on a monthly basis.

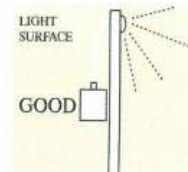
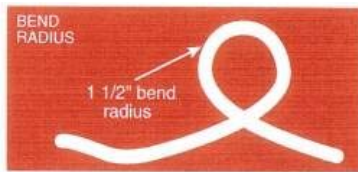
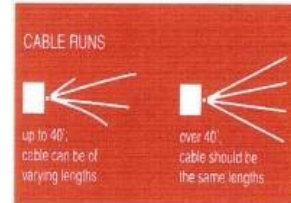
### Feature comparison chart between neon and fiber

<u>Feature</u>	<u>Neon</u>	<u>Fiber</u>	<u>SAVINGS</u>	<u>Feature</u>	<u>Neon</u>	<u>Fiber</u>
Cost/100 ft	\$2000	\$2000	-----	Color changeability	NO	YES
Installation	\$1000	\$250	\$750	Re-useable	NO	YES
5 yrs. Maintenance	\$1250	\$250	\$1000	Use in or around water	NO	YES
<b>Total:</b>	<b>\$4250</b>	<b>\$2500</b>	<b>\$1750</b>	Heat/electricity in run	Yes	NO
				Liability for breakage	Yes	NO
				High voltage in run	Yes	NO
				U.L./C.S.A. approved	NO	YES



**Sidelight Cable Runs:** Up to 100 foot runs are ideal, a longer run of up to 150 feet is acceptable depending on the application and illuminator model. Wherever possible, sidelight cable should always be looped in and out of the light source. Not looping is acceptable up to a maximum approximately 40 feet or so. On long runs, multiple illuminators in series are the norm. They may or may not be synchronized depending on the color effect desired. When using multiple illuminators, always try to keep each cable run as close to the same length as possible. This will ensure the cables uniform brightness.

**End Light Cable Runs:** Maximum run is approximately 40 feet. However, it should be noted that the shorter the run and/or the more strands, the brighter the end result. If multiple end light fixtures are used, the cable lengths should be uniform on lengths over 40 feet.



If bending the sidelight cable is necessary, a minimum bend of 1 1/2" radius is recommended. Anything less may create a bright spot at the bend.

### Design and Installation Considerations:

**Good ventilation in necessary for all illuminators**

**Light colored reflective surfaces are preferable for end light or sidelight applications. Dark surfaces absorb light and should only be used to provide contrast. When estimating fiber length, be as accurate as possible. Always allow a few extra feet for a service loop. Remember, you cannot add to the cable once it is cut.**

