



031: Fiber Optics, Outdoors

Basic concepts

The primary safety hazard unique to optical fiber is broken shards of fiber. These are, in effect, microscopic glass needles. They make terrible splinters, and can be very hazardous to your health if ingested.

A major hazard unique to optical fiber is that the light passing through fibers is invisible to the human eye. So, you can look at a fiber, see nothing, and still burn your retina. This is a significant concern on higher-power optical systems. Cable TV networks and some data transmissions use power sufficient to cause such damage.

Outdoor cables are commonly of the loose tube design, and most contain water-block gel. In addition to being unpleasant to work with, this gel on a smooth floor can create a significant slipping hazard to people walking through the area.

Any conductive optical cables must be properly grounded when entering a building, to protect the facility and people working in it from ground currents and external voltage surges, such as from a nearby lightning strike.

General safety

Do not inspect live cable ends. Fibers must be dark when inspected. Use a power meter to determine the fiber status.

Wear eye protection at all times. If you are working with live cables, wear eye protection specified for infrared filtering.

Post the appropriate warning signs and erect the appropriate barriers (such as tape) before performing splicing or termination work.

Do not touch your eyes or handle contact lenses until you have thoroughly washed your hands.

Do not allow any food or drink in areas where fiber termination is being done.

Clear your workstation after doing any work involving termination, or anywhere where there may be broken pieces of fiber. Gather all stray pieces of fiber, and place them in a sealed container for disposal.

Pat yourself down with adhesive tape when you complete any work involving termination of fibers. Ensure you have no fiber optic fibers on your clothing. Wash your hands at the nearest hand washing facility.

Read and understand the MSDS for any solvents you use.

Installing cable

Roll the cable off the spool, rather than spinning it off the spool end. This prevents damage to the cable, while also reducing the chances of a whip-like injury.

When laying cable out for a long pull, use a figure 8 on a safe, clean, flat surface. This prevents twisting. A twist in the cable makes it harder to work with, and thus a strain or muscle pull more likely. It also creates a tripping hazard.

Use a swivel-pulling eye to reduce the chances of twisting.

Attach the cable to a pulling line by using the method recommended by the cable manufacturer. This prevents a loss of cable during a pull. A sudden loss may cause people who are pulling the cable to overextend themselves.

Discussion leader duties for this session:

Read the company's safety policies in regard to fiber optics and outdoor work, so you can answer any questions.

What this Safety Talk covers:

Safety concepts particular to working with fiber optic installations while outdoors.

Discussion notes :

