

Splicing, or the joining of two fiber strands together, is an important step in preparing middle-mile fiber for internet service provider access.

An access point to middle-mile fiber is created by installing an RTD, or multiport terminal on the pole. An RTD allows internet service providers to “plug in” to middle mile fiber.

During the middle-mile construction process, fiber optic cable is left wrapped on coil brackets to allow for future restoration and splicing.

Fiber optic cable consists of multiple fiber strands in individual buffer tubes closed inside of a protective outer layer. This protective jacketing must be removed so the necessary fiber strands can be separated and spliced.

Jacketing must be removed from three cables; the entry cable, the exit cable, and the access point cable. Once the jacket is removed, the cables can be loaded into the enclosure.

Once stripped and loaded, the cable is “dressed”, or wrapped inside the splice enclosure.

The multicolored cables you see here are buffer tubes. Each buffer tube contains multiple fiber strands. Here, the blue cable on top will be spliced together with the RTD.

ADSS cable, or all-dielectric self-supporting, is the standard for Dominion Energy middle-mile fiber.

These fiber strands must be separated from the buffer tube prior to splicing.

A splice tray will hold the individual strands in place inside the enclosure.

In this project, the RTD is being connected to Dominion Energy middle-mile fiber to allow for internet service provider access.

Each strand is cleaned so the splice is free of any contaminants and inside the threshold for loss.

Here, the orange and blue fiber strands are cut with a high precision cleaver and loaded into the fusion splicer to be joined together.

Strands are joined together by superheating and fusing the two fibers in a fusion splicer. Here we see an estimated loss of 0.01 decibels, well within the threshold for a clean splice.

Since the protective layer has been removed from the spliced fiber, a new plastic tube is added to protect the splice.

Fiber strands are then organized inside the enclosure.

Once the splicing is complete, the enclosure is placed back inside the protective canister on the pole. This access point is now ready for last mile connections.