

FIBER OPTIC CABLE (LCDOT)

Effective: October 1, 2016

Revised:
LC871.01

Description: This work shall consist of furnishing and installing all accessories required and fiber optic cable of the type, size, and number of fibers specified.

Materials: The Fiber Optic Cable shall meet the requirements of Article 1076.02 of the "Standard Specifications" and the following:

The Fiber Optic Cable may be gel filled or have an approved water blocking tape.

General: This work shall be performed according to Section 871 of the "Standard Specifications" and the following:

This work shall consist of furnishing and installing fiber optic cable in conduit with all accessories and connectors. The cable shall be of the type, size, and the number of fibers specified with a maximum of twelve fibers per buffer tube. The work includes making all fiber splices and terminations to the proposed fiber optic cable as indicated on the plans and/or as directed by the Traffic Engineer.

The distribution enclosure shall be wall-mountable with capacity for four closet connector housing panels per enclosure and up to eight 0.2-inch or four 0.4-inch reduced length splice trays. The enclosure dimensions shall not exceed 13.5" x 8.5" x 4.5". The enclosure shall be capable of accommodating the required number of fibers. The distribution enclosure shall be included in the cost of FIBER OPTIC CABLE of the type, size, and number of fibers specified, including connections to any existing cables.

All fibers being terminated shall be connected to the distribution enclosure and labeled at the connector and also at the enclosure bulkhead. The label shall include the direction and also the fiber number (e.g. S1, S2, N11, N12).

All splices and terminations on the installed fiber optic cable shall be included in the cost of the fiber optic cable, including the splicing of the installed fiber optic cable to any existing fiber optic cable. Splice trays and connector bulkheads required for the installed fiber optic cable shall be included in the cost of FIBER OPTIC CABLE of the type, size, and number of fibers specified.

All terminations and splices required only on existing fiber optic cable shall be paid for separately according to the pay item TERMINATE FIBER IN CABINET or SPLICE FIBER IN CABINET.

A minimum of 13 feet of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Traffic Engineer.

The quality of the fiber optic cable, including all splices and terminations, shall be verified by testing and documentation according to Article 801.13(d) of the "Standard Specifications", to the satisfaction of the Traffic Engineer.

Multimode: When multimode fiber is required, the Contractor shall coordinate with the equipment supplier, and shall terminate as many multimode fibers as are necessary to establish proper communications between new and/or existing signal controllers and/or video transmission equipment. In addition, the Contractor shall terminate four unused multimode fibers and attach them to the distribution enclosure. All multimode terminations shall be ST compatible connectors with ceramic ferrules.

Singlemode: The Contractor shall splice and/or terminate the number of singlemode fibers shown on the project plans, if any, according to the following requirements:

Singlemode Fiber Terminations: All singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (SC compatible with ceramic ferrules) pigtailed fusion spliced to bare fibers. The pre-fabricated pigtailed fibers shall have all of their fibers color coded to match the singlemode fibers in the fiber optic cable. Connector bulkheads shall be the proper type for the fiber enclosure at the location, and shall be properly secured to the enclosure.

Singlemode Fiber Splices: All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. All fusion splices shall be secured on aluminum splice trays capable of accommodating the required number of fusion splices, including necessary splice holders and a compatible splice tray cover. The tray dimensions shall not exceed 7.5" x 4.1" x 0.45" and shall be mounted within the enclosure using suitable hardware that allows removal for maintenance purposes without the use of tools. All individual splice trays shall be labelled.

All optical fibers shall be spliced to provide continuous runs. Splices shall only be allowed in equipment cabinets except where otherwise shown on the plans.

Basis of Payment: The work shall be paid for at the contract unit price per foot for FIBER OPTIC CABLE of the type, size, and number of fibers specified. *The unit price shall include distribution enclosure(s), all connectors, pigtailed fibers, splice trays, connector bulkheads, testing and documentation, and the required number of fiber splices and terminations shown on the plans.* Additional fiber terminations and/or splices required by the Traffic Engineer, (not included in this item), shall be paid for as TERMINATE FIBER IN CABINET and/or SPLICE FIBER IN CABINET.