SECTION 632
SIGNAL CABLE

632-1 Description.

Furnish and install underground and aerial signal cable as shown in the Plans and in accordance with Design Standards, Index No. 17727.

632-2 Materials.

Use only new materials meeting the requirements of this Section.

632-2.1 Signal Cable: Use either polyethylene insulated, polyvinyl chloride jacketed signal cable conforming to the requirements of the International Municipal Signal Association, Inc. (IMSA) Specification No. 19-1 or polyethylene insulated, polyethylene jacketed signal cable conforming to the requirements of IMSA Specification No. 20-1. Use signal cable conductors of stranded copper, No. 14 AWG or larger.

632-2.2 Signal Cable Attachment Hardware: Ensure that all bolts and nuts less than 5/8 inch in diameter are passivated stainless steel, Type 316 or Type 304 and meet the requirements of ASTM F593 and ASTM F594 for corrosion resistance. Ensure that all bolts and nuts 5/8 inch and over in diameter are galvanized and meet the requirements of ASTM A307. Use attachment hardware with sufficient tensile strength for the application. Use stainless steel lashing wire, galvanized or stainless steel lashing rod, cable rings or self-locking cable ties of UV stabilized black plastic having a minimum tensile strength of 100 pounds.

632-3 Installation Requirements.

Except for mast arm assemblies, install signal cable in continuous lengths between the traffic signal controller cabinet and the first disconnect hanger (or traffic signal head) on the span and between the traffic signal controller cabinet and each pedestrian signal head and pedestrian detector.

Do not use the neutral return conductor for pedestrian detectors as a neutral return for any other device. Conductors for the pedestrian signal head and the push button must be separated at the base of the pedestal and routed to the detection panel using separate raceways.

632-3.1 Number of Conductors: Determine the number of conductors required for each signal cable unless specified in the Contract Documents.

Provide three spare conductors for each signal cable used at all signal installations. Install the three spare conductors from the controller cabinet through each disconnect hanger (or traffic signal head) to the furthermost disconnect hanger (or traffic signal head).

Identify all spare conductors in a controller cabinet and ground them to the controller cabinet ground bus bar. Provide spare conductors within the controller cabinet of sufficient length to reach the furthermost field wiring terminals in the cabinet.

632-3.2Protection of Cable: Ensure cable drawn through conduit, ducts, drilled holes protected by a rubber grommet, or support structures is installed in such a manner as to prevent damage to conductors or insulation.

632-3.3 Cabling for Mast Arm Assembly: Continuous lengths of cable between the traffic signal controller cabinet, signal heads (or disconnect hangers), pedestrian signal heads and pedestrian detectors will be allowed only when specified in Contract Documents.

632-3.4 Cable Terminations: Terminate signal cable in the terminal by inserting the bared conductors into a compression type terminal block.

When barrier terminal blocks are specified in the Contract Documents, crimp insulated fork or ring terminals to the bared conductors using a calibrated ratchet-crimping tool and connect the forks or ring terminals to the barrier terminal block.

Neatly form and tie wrap all cable terminations.

If disconnect hangers are specified in the Contract Documents, terminate spare wires at the terminal strip located inside the disconnect hangers. Individually cap or tape any additional spares in the disconnect hanger.

Connect signal cables for a mast arm assembly in the terminal compartment when provided.

632-4 Method of Measurement.

The Contract unit price for signal cable, furnished and installed, will include furnishing all material, hardware, support wire, cable ties, cable clamps, lashing wire, terminal connectors, cable grounding and labor necessary for a complete and accepted installation.

For intersections where new strain poles, monotubes, or mast arms are installed, payment for signal cable will be based on the number of intersections at which signal cable is furnished and installed.

For all other applications, including repair and replacement of signal cable, payment for signal cable will be based on the linear feet of cable used.

632-5 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 632- 7- Signal Cable