

THE GROUNDED SIDE OF THE POWER SUPPLY SHALL BE GROUNDED TO THE CONTROLLER CABINET IN AN APPROVED MANNER.

MOUNTING FACILITIES SHALL BE: 2 EACH PAINTED FULL CIRCLE MOUNTING BANDS FOR STEEL POLE MOUNTING. (EAGLE SIGNAL CO. UL 24, CROUSE HINDS CO. HL8842, OR EQUAL).

ALL CAST PIECES SHALL BE CLEAN, SMOOTH AND FREE FROM FLAWS, CRACKS, BLOWHOLES AND OTHER IMPERFECTIONS.

THE CABINET AND FAN HOUSING SHALL BE PRIME COATED AND SHALL BE FINISHED WITH TWO COATS OF YELLOW ENAMEL PAINT USING FEDERAL STANDARD 595 COLOR #13655.

E. WIRING DIAGRAMS AND SERVICE MANUALS

TWO WIRING DIAGRAMS, SERVICE MANUALS, INSTRUCTIONS FOR INSTALLING AND MAINTAINING THE EQUIPMENT, AND ADVICE AS TO ITS TIMING AND OPERATION SHALL BE PROVIDED WITH EACH APPLICABLE ITEM. SIMILAR INFORMATION SHALL ALSO BE PROVIDED FOR THE COMPLETE SYSTEM INSTALLED WITHIN THE CONTROLLER CABINET.

THE CONTRACTOR SHALL ALSO TAG ALL WIRES COMING INTO THE CONTROLLER CABINET. THESE TAGS SHALL DESIGNATE TO WHICH SIGNAL HEAD, DETECTOR OR OTHER DEVICE IT IS RELATED.

F. BASIS OF PAYMENT

ALL CONTROLLERS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER EACH CONTROLLER, AS DESCRIBED IN ITEM 625 CONTROLLER BY TYPE, WHICH PRICE SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND EQUIPMENT INCLUDING THE CONTROLLER CABINET AND ALL AUXILIARY EQUIPMENT AND ALL OTHER ITEMS IDENTIFIED WITH THE PERTINENT CONTROLLER INSTALLATION.

TESTING OF TRAFFIC SIGNALS

THE CONTRACTOR SHALL FURNISH ALL PERSONNEL, EQUIPMENT AND APPLIANCES REQUIRED TO SUCCESSFULLY TEST THE COMPLETED INSTALLATIONS.

THE CONTRACTOR SHALL TEST AND DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE, THAT THE CIRCUITS ARE PROPERLY CONNECTED, CONTINUOUS AND FREE FROM SHORT CIRCUITS, CROSSES AND UNSPECIFIED GROUNDS, AND THAT THEY ARE CONNECTED IN ACCORDANCE WITH THE WIRING INSTRUCTIONS AND THAT EACH CIRCUIT IS OPERABLE CORRECTLY AND INDEPENDENTLY OF ANY OTHER CIRCUIT.

THE CONTRACTOR SHALL TEST EACH UNGROUNDED CIRCUIT AND SPARE WIRES TERMINATING AT THE TRAFFIC CONTROLLER CABINET FOR RESISTANCE TO GROUND. THIS RESISTANCE TO GROUND SHALL BE NOT LESS THAN TEN (10) MEGOHMS. THE CONTRACTOR SHALL FURNISH A COMPLETE REPORT OF ALL MEGOHM READINGS OF EACH CIRCUIT AND SPARE CONDUCTORS IN CABLES APPEARING AT THE CONTROLLER BASE. THE GROUND ROD AT THE TRAFFIC CONTROLLER SHALL HAVE A RESISTANCE OF NOT MORE THAN 15 OHMS TO GROUND.

AFTER ALL CIRCUITS AND SPARE CONDUCTORS HAVE BEEN TESTED, THE CONTRACTOR WILL INSTALL THE TRAFFIC CONTROLLER AND CONNECT THE FIELD WIRING TO THE TERMINAL CONTACTS OF THE TRAFFIC CONTROLLER. THE COMPLETED INSTALLATION SHALL OPERATE CONTINUOUSLY FOR A PERIOD OF TEN DAYS WITHOUT INTERRUPTION OR FAILURE ATTRIBUTABLE TO POOR WORKMANSHIP OR DEFECTIVE MATERIAL PRIOR TO ACCEPTANCE AND AFTER ANY DEFECTIVE PARTS HAVE BEEN REPLACED AND ALL FAULTS CORRECTED.

THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY OF CORRECTING MALFUNCTIONS OF THE INSTALLATION. POWER FOR THE TEST WILL BE FURNISHED FROM THE SERVICE INSTALLED AS A PART OF THIS CONTRACT. THE COST OF THE POWER TO CONDUCT THE TEST WILL BE BORNE BY THE CONTRACTOR; COSTS OF CONDUCTING TESTS BY THE CONTRACTOR SHALL BE INCLUDED IN THE BID PRICE FOR THE ITEM TESTED.

625 TRAFFIC SIGNAL HEADS, BY TYPE

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING VEHICULAR TRAFFIC SIGNAL HEADS OF THE TYPE AND SIZE SHOWN ON THE PLANS AND INSTALLING THEM AS SHOWN ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER, IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

ALL TRAFFIC SIGNALS SHALL MEET THE LATEST ITE (INSTITUTE OF TRAFFIC ENGINEERS) STANDARDS FOR "ADJUSTABLE FACE TRAFFIC CONTROL SIGNAL HEAD STANDARDS". THE TRAFFIC SIGNALS SHALL ALSO MEET THE FOLLOWING REQUIREMENTS:

1. (EIGHT (8") TWELVE (12")) TRAFFIC SIGNAL SECTIONS SHALL BE INSTALLED WITH A COMBINATION TUNNEL TYPE HOOD EIGHT (8") TWELVE (12") INCHES LONG, WITH AN OPEN SLOT AT THE BOTTOM OF THE HOOD.
2. REFLECTORS SHALL BE HIGHLY POLISHED SPECULAR ALUMINUM.
3. ALL TRAFFIC SIGNALS SHALL BE ARRANGED FOR SPAN WIRE MOUNTING AND SHALL CONSIST OF THE NUMBER OF FACES AND SECTIONS SHOWN ON THE PLANS WITH QUICK DISCONNECT 12-POINT TERMINAL BLOCK, SPAN WIRE CLAMP AND ALL OTHER ACCESSORIES AS REQUIRED.
4. GLASS OR ACRYLIC PLASTIC LENSES, NUMBER AND SIZE, SHALL BE AS INDICATED ON THE INTERSECTION DRAWING. THESE LENSES SHALL MEET THE LATEST ITE STANDARDS FOR LENSES.
5. ALL SIGNAL OPTICAL UNITS SHALL PRODUCE STANDARD (ITE DEFINITION) LIGHT DISTRIBUTIONS.
6. ALL TRAFFIC SIGNALS AND SIGNAL SERVICE ENTRANCE FIXTURES SHALL BE PAINTED ACCORDING WITH THE FOLLOWING:
FINISH ON BODY OF SIGNAL, OUTSIDE OF HOOD, DOORS AND SERVICE ENTRANCE FIXTURE - FEDERAL YELLOW.
FINISH ON INSIDE OF HOOD - FLAT BLACK.

PAINT REQUIREMENTS:

1st COAT (ALL SURFACES) - EPON OXIDE BAKING PRIMER, FEDERAL SPEC. TT-P-636.

2nd COAT (ALL SURFACES) - MEDIUM GRAY ALKYD UREA EXTERIOR BAKING ENAMEL, FEDERAL SPEC. TT-E-480B.

3rd COAT (YELLOW SURFACE) - FEDERAL YELLOW ALKYD UREA EXTERIOR BAKING ENAMEL, FEDERAL SPEC. TT-E-489B, COLOR 13538.

3rd COAT (FLAT BLACK SURFACES) - ALKYD UREA BLACK SYNTHETIC, HEAT RESISTING GLYCERYL PHTHALATE TYPE 4, INSTRUMENT BLACK, MILITARY SPEC. E-5557.

7. STAINLESS STEEL LATCHING DEVICES AND SPAN WIRE HANGERS SHALL NOT BE PAINTED.
8. POLYCARBONATE SIGNALS MAY BE BID AS AN ACCEPTABLE ALTERNATE. IT IS TO BE UNDERSTOOD THAT THESE SPECIFICATIONS SHALL BE APPLICABLE ONLY SO FAR AS THEY APPLY.
9. BALANCE ADJUSTORS SHALL BE INSTALLED IF NECESSARY TO MAINTAIN THE TRAFFIC SIGNALS IN A VERTICAL POSITION.
 - B. THE SIGNAL HEAD SHALL BE ERECTED VERTICALLY FROM A SPAN WIRE WITH THE BOTTOMS OF ADJACENT SIGNAL HEADS AT APPROXIMATELY THE SAME ELEVATION BY MEANS OF NIPPLE EXTENSIONS WHERE NECESSARY.
 - C. EACH SIGNAL FACE SHALL BE AIMED IN THE DIRECTION OF THE APPROACHING TRAFFIC IT IS TO CONTROL. THEY SHALL BE AIMED AS SHOWN ON THE SIGNAL PLAN DETAIL SHEETS.
 - D. TYPES OF TRAFFIC SIGNAL HEADS
TRAFFIC SIGNAL HEADS SHALL BE OF THREE TYPES, AS SPECIFIED:

1. ONE-WAY FACE; 3 - 8" SECTIONS
2. ONE-WAY FACE; 2 - 8" SECTIONS AND 1 - 12" SECTION
3. ONE-WAY FACE; 3 - 12" SECTIONS

E. EACH SIGNAL HEAD SHALL BE BAGGED OUT OF SERVICE UNTIL THE INSTALLATION IS PUT INTO OPERATION.

F. SIGNAL LAMPS

EACH SIGNAL SECTION SHALL BE FURNISHED WITH AN INCANDESCENT LAMP. THE LAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE ITE SPECIFICATION FOR TRAFFIC SIGNAL LAMPS.

THE LAMPS SUPPLIED SHALL BE AS FOLLOWS:

1. 12" DIAMETER GREEN ARROW-150 WATTS-6000 HOUR LIFE-3" LIGHT CENTER LENGTH.
2. 8" DIAMETER YELLOW-69 WATTS-6000 HOUR LIFE-2 7/16" LIGHT CENTER LENGTH.
3. 8" DIAMETER RED AND GREEN-121 WATTS-6000 HOUR LIFE-2 7/16" LIGHT CENTER LENGTH.
6. SIGNALS SHALL BE INSTALLED SUCH THAT THE LOWEST POINT OF THE SIGNAL IS SIXTEEN (16) TO SEVENTEEN (17) FEET ABOVE THE PAVEMENT SURFACE.
- H. PAYMENT FOR ITEM 625 TRAFFIC SIGNAL HEAD BY TYPE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH SIGNAL ASSEMBLY (BY TYPE) MOUNTED IN PLACE, TESTED AND ACCEPTED.

816 SIGNAL STRAIN POLE, BY TYPE

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND ERECTION OF POLES AS SHOWN AND SPECIFIED IN THE PLANS.

SHAFTS SHALL BE TAPERED TUBES.

EACH POLE SHALL BE GALVANIZED AND INCLUDE THE FURNISHING OF ANCHOR BOLTS, TYPE III RIGID FERROUS METAL 3" CONDUIT ELL AND A 3/4" ELECTRICAL METALLIC TUBING ELL FOR GROUNDING LEAD FOR INSTALLATION IN FOUNDATIONS PLUS HANDHOLE WITH COVER, "J" HOOK, POLE CLAMP, AND CABLE SERVICE ENTRANCE WITH BLIND HALF-COUPLING FOR EACH POLE IN ACCORDANCE WITH DETAILS ON SHEET 56.

THE POLES SHALL BE INSTALLED AND ADJUSTED TO THE PROPER RAKE SO THAT THE WEIGHT OF THE SIGNAL INSTALLATION WILL NOT CAUSE THE POLES TO BE OFF VERTICAL ALIGNMENT BY MORE THAN 1%.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER EACH 816 SIGNAL STRAIN POLE, BY SIZE, INCLUDING ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS RELATED TO THIS ITEM OF WORK.

816 CONCRETE FOR SIGNAL SUPPORT FOUNDATIONS

PAYMENT FOR THIS ITEM SHALL BE BASED ON PLAN DIMENSIONS (OR DIMENSIONS AS MODIFIED BY THE ENGINEER IN LIEU OF PLAN QUANTITIES) AS REQUIRED IN SUPPLEMENTAL SPECIFICATION 816.

PAYMENT FOR REINFORCING STEEL AND INSTALLATION ONLY OF ANCHOR BOLTS AND CONDUIT ELLS SHALL BE INCLUDED IN THE COST OF CONCRETE FOR SIGNAL SUPPORT FOUNDATIONS. CONCRETE SHALL BE CLASS "C".

BASIS OF PAYMENT SHALL BE PER CUBIC YARD FOR ITEM 816, CONCRETE FOR SIGNAL SUPPORT FOUNDATIONS CONSTRUCTED AND ACCEPTED. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL NECESSARY EXCAVATION, FORMWORK, BACKFILLING, DISPOSAL OF SURPLUS MATERIAL AND FURNISHING ALL MATERIAL AND FITTINGS WITHIN THE LIMITS OF THE FOUNDATIONS AND INSTALLING CONDUIT AND ANCHOR BOLTS.

625 SIGNAL CABLE #14 AWG, BY TYPE

TRAFFIC SIGNAL CABLE SHALL BE WEATHERPROOF AND SHALL CONSIST OF THE NUMBER OF CONDUCTORS AS SPECIFIED ON THE PLANS. ALL CONDUCTORS SHALL BE AWG #14.