

1300 INSTALLATION OF STREET LIGHTING EQUIPMENT AND TRAFFIC CONTROL DEVICES

The following Specifications and provisions shall apply to the construction of all Street Lighting and Traffic Control Systems.

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ITEM 1301 - DESCRIPTION

This specification covers the details of equipment, material, appurtenances and the labor necessary for the installation of a complete, first-class Street Lighting and/or Traffic Control System. This work shall consist of furnishing and installing all Lighting, Traffic Signal and Signing Equipment ready for service at the locations shown on the plan and in accordance with the details or as ordered by the City Traffic Engineer. The work shall also include necessary excavation and backfill, disposal of discarded materials, restoration of disturbed facilities and surfaces and electrical testing as specified.

In addition the work shall require maintaining existing traffic and lighting facilities throughout the life of the contract period. This also includes installation of any temporary lighting, traffic signals or signing where specified in the plans.

Equipment specified as being furnished by the City will be available as indicated herein and shall be installed by the Contractor.

ITEM 1302 - REFERENCES

Wherever reference is made herein to any other specification or standard, it shall mean the latest revision thereof in effect at the time of invitation to bid. Where a reference specification and this specification disagree, this specification shall govern.

AASHTO numbers refer to the standards issued by the American Association of State Highway and Transportation Officials, Washington, D.C. 20001.

AISI numbers refer to standards of American Iron and Steel Institute, Washington, D.C. 20036.

ANSI refers to American National Standards Institute, Inc., New York, New York 10018.

ASTM numbers refer to designation numbers of standards issued by American Society for Testing and Materials, Philadelphia, Pa. 19103.

AWPA numbers refer to the specifications issued by the American Wood Preservers Association, Stevensville, M.D. 21666.

AWS numbers refer to the specifications issued by the American Welding Society, Miami, Florida 33135.

EI numbers refer to standards of Edison Electric Institute, Washington, D.C. 20036.

Federal Color Numbers refer to Federal Standard No. 595 issued by the United States Government, General Services Administration, Business Service Center, Region 3, Specifications Activity, Printed Materials Supply Division, Building 197, Naval Weapons Depot, Washington, D.C. 20407. Color chips are available from this source.

IEEE numbers refer to standards of the Institute of Electrical and Electronic Engineers, New York, New York 10017.

IES numbers refer to standards of Illuminating Engineering Society, New York, New York 10017.

ITE refers to the Institute of Transportation Engineers, Washington, D.C. 20024.

IMSA numbers refer to the specifications issued by the International Municipal Signal Association, Fort Worth, Texas 76112.

ICEA numbers refer to the specifications issued by the Insulated Cable Engineers Association, South Yarmouth, MA 02664.

NECA refers to National Electrical Contractors Association, Bethesda, MD 20814.

NEMA numbers refer to standards of National Electrical Manufacturers Association, Washington, DC 20037

The Ohio Manual of Uniform Traffic Control Devices for Streets and Highways referred to herein is available from the Ohio Department of Transportation, Bureau of Traffic, 25 S. Front Street, P.O. Box 899, Columbus, Ohio 42316-0899. Part 7 is available as a handbook.

REA numbers refer to the specifications issued by the Rural Electrification Administration, Washington, DC 20250.

UL Listing refers to the Standards of the Underwriters Laboratories, Inc., Chicago, Illinois 60611.

The State of Ohio, Department of Transportation, Construction and Materials Specifications and the current issue of the City of Cincinnati Supplement to said current issue of the State of Ohio Specifications will be available at the office of the City Engineer including any supplements and/or changes thereto. Item numbers referred to herein shall be in reference to the State of Ohio Specifications and City of Cincinnati Supplement.

ITEM 1303 - MATERIALS

1. Materials In General. All equipment and materials shall be new, of first quality, of current design, proven in service, and free from defects and poor workmanship. Electrical equipment in general shall comply when applicable with the Underwriters Laboratories, Inc. requirements. Traffic signal equipment shall comply with the requirements of the Institute of Transportation Engineers (ITE). The equipment and materials shall also comply with the National Electrical Code and local codes for the City of Cincinnati. Experimental or untried equipment shall not be acceptable.

All electrical parts, wire, switches and other elements of the installations shall be of ample capacity to carry the required current without excessive heating or causing an excessive drop of potential.

Except as otherwise provided herein each individual item of equipment shall bear a nameplate, indelible marking or brand that shall identify it as to type, model, catalog number and manufacturer.

If requested by the City, samples of equipment and materials shall be supplied by the Contractor for testing and evaluation.

2. Guarantee. The Contractor shall replace and install free of charge to the City, any material furnished by the Contractor that fails in any manner by reason of defective material or workmanship within a period of one year from the date accepted by the City, or the manufacturers standard warranty, whichever is greater. Warrant performance as advertised and suitability for intended use.

3. Damaged Materials. The Contractor shall be responsible not to scratch or damage the paint or galvanized finish on any materials or equipment installed.

Minor scratches shall be touched up with two coats of a zinc rich base paint matching the final paint color. Major deep scratches on galvanized finishes on poles or other equipment will not be acceptable.

ITEM 1304 - UTILITIES, PERMITS AND REGULATIONS

1. Utilities. Before excavating, the Contractor shall contact the Ohio Utility Protection Service (OUPS), and comply with all OUPS regulations. Regardless of surface markings for underground utilities, the Contractor shall exercise extreme caution in all areas where underground activities are known to exist.

The Contractor shall consult and cooperate with the Cincinnati Gas and Electric Company and the Cincinnati Bell Telephone Company in order to provide attachments to each company's respective poles.

The Contractor shall comply with the National Electrical Safety Code Standards for Utility Line clearances on poles and shall maintain the following clearance.

Utility	Minimum Clearance	To
Telephone and/ or Cable TV Cables	1m (40 inches) below	
Cincinnati Gas and Electric Company 120/240 Volt Secondary System	300mm (1 foot) above	proposed traffic signal and/or street lighting equipment
Utility	Minimum Clearance	To (Continued)
Cincinnati Gas and Electric Company primary system	2m (6 feet) above	cable and attachments

Where cable is specified to be installed over railroad tracks, the Contractor shall maintain a minimum clearance of 8m (27 feet) between the cable and the tracks. Traffic signals and signs installed on spans which cross at railroads shall be guyed or tethered with additional messenger cable to prevent equipment from swaying within 4m (12 feet) of the track rail.

2. Permits. The Contractor shall obtain all permits and shall comply with the provisions of Item 107.04.

Where contracts are exclusively for the installation of traffic signal and/or street lighting equipment and bids are let through the City's Purchasing Department, the City may provide marked prints which indicate existing utilities. Such drawings may be used by the Contractor for the purposes of expediting the permit process.

3. Regulations. The Contractor shall perform all work in accordance with the laws, codes and regulations established by the City of Cincinnati.

In addition to local codes, the Contractor shall conform to the latest edition of the National Electrical Code and the National Electrical Safety Code.

ITEM 1305 - COORDINATION

The Contractor shall not remove any operating traffic signal or other equipment from service without seven (7) days prior notification to the Engineer. The Contractor shall have his supervisor of construction consult with the Engineer before and during construction to resolve any problems that may arise.

Equipment and/or devices specified to be furnished by the City of Cincinnati for installation by the Contractor shall be provided upon sixty (60) days advance written notice to both the Engineer and the City Traffic Engineer. (See Item 1308.)

Controllers furnished to the Contractor by the City of Cincinnati shall be installed and placed in operation within seven (7) days after procurement of the equipment from the City. The City shall withhold the furnishing of control equipment to the Contractor for any locations that are not complete and ready to operate.

ITEM 1306 - WORKING PLANS

Within reasonable time, the Contractor shall submit to the Engineer and the City Traffic Engineer for review and approval eight sets of drawings, catalog cuts, specifications, brochures, data sheets, wiring drawings, etc., of apparatus and equipment he proposes to furnish. They shall show clearly the design, quality, dimensions, and other such information as may be necessary for a proper evaluation of the items submitted. All submitted documents shall identify the specific project number, name and year with the bid item reference number to which the apparatus or equipment applies. If more than one catalog number or type is listed on a sheet, the item intended to be furnished shall be indicated by underlining, circling, or otherwise marking.

In the event any of the items fail to comply with specification requirements, such items will be rejected. The Contractor shall not purchase or install any of the items until written approval of the submitted item is received from the Engineer.

The approval of working plans by the Engineer shall not relieve the Contractor of responsibility for erroneous or inconsistent dimensions, notations, omissions or other errors, or the proper functioning of the completed installation. After approval by the Engineer such plans shall be taken as supplemental, but in no sense a substitute for, the original plans.

ITEM 1307 - STANDARD DRAWINGS

Standard Detail Drawings in booklet form showing accepted installation practices and fabrication requirements will be available at the Division of Traffic Engineering, Suite 250, 705 Central Ave., Cincinnati, Ohio 45202.

All equipment and installations furnished by the Contractor shall be in accordance with these standard details where such details are not provided on the plans.

ITEM 1308 - EQUIPMENT FURNISHED BY THE CITY

The Contractor shall provide all labor, materials and equipment for the complete installation of street lighting circuits and/or traffic control systems in accordance with the plans, details and specifications, except equipment specified as "**Installation only**" or "**Item 1308.01 Equipment to be Furnished by the City**".

Where any equipment is specified as **installation only** or **furnished under Item 1308.01**, such equipment will be furnished by the City and shall be assembled and installed by the Contractor. Payment will be made as indicated in Item 1308.01. The Contractor shall furnish all other hardware, material and incidentals necessary to provide the assembly complete and ready to install.

Depending on the extent and nature of the contract work, the City may elect to require the Contractor to furnish all equipment or may provide some or most of the equipment to the Contractor.

The following guidelines generally apply; however, may be modified depending on the contract and availability of City owned equipment.

1. Where contracts are based on unit price bids, only that equipment, which is specified in the contract bid item as **Installation only**, will be furnished by the City.
2. Where traffic signal and/or street lighting installations are bid on a lump sum basis, all equipment as listed under Item 1308.01 will be furnished by the City.

Complete specifications are included herein for all equipment regardless if specified to be furnished by the City or the Contractor.

1308.01 Equipment Furnished by the City. Where specified in the contract that the City will furnish equipment under Item 1308.01, the following equipment and accessories will be provided.

1. Steel anchor base and/or embedded base poles and posts, including lighting bracket arms, anchor bolts and nuts.
2. Wood poles.
3. Vehicular and lane use traffic signal heads. The Contractor shall assemble the signal and furnish all other hardware and materials to provide the signal head complete and ready for installation. All signals will be furnished with lamps.
4. Pedestrian signal heads, including lamps.
5. Illuminated signs, including lamps and plastic face.

6. Traffic signal controllers, complete with cabinet and with all internal timings setup. The Contractor shall install, furnishing all hardware and incidentals, and connect all signal, interconnect and power cables.
7. Detector amplifiers and probes, including magnetometer probe cable where magnetometer detectors are specified.
8. Island lights including fixture, globe and lamp, not including hardware for mounting to the post.

NOTE: The Contractor shall furnish and install all mounting or hanging hardware and incidentals to complete the installation.

Other equipment not indicated herein may be included under this item. Such equipment would be specified in the provisions of the contract bid proposal.

The equipment which the City will furnish the Contractor will be furnished to him at the Bureau of Traffic Services Storeroom 1408 Queen City Avenue, and will be equipped only with those accessories indicated herein.

The Contractor will be required to load all equipment into his own vehicles. Payment for hauling and loading equipment shall be incidental to the item.

The Contractor shall be responsible for City-furnished equipment while in his custody.

In addition to the 60 days advance written notice, the Contractor shall give an additional (5) five days oral or written notice as a reminder prior to picking up equipment. This would be inclusive in the 60 days notice.

ITEM 1309 - INSTALLATION PRACTICES

1. Lateral Roadway - Structure Clearance. Clearance between face of curb and face of pole, pedestal, post, cabinet or equipment attached thereto shall be a minimum of 600mm (2 feet).

2. Equipment Installation Practices. All traffic control devices installed on a span wire and/or a mast arm(s) for any approach shall be installed to provide a level appearance of the lowest part of all the equipment facing the approach with the lowest clearance of any equipment meeting the minimum clearance of 5.2m (17 feet) to grade or as specified in the plans and specifications.

3. Signal and Sign Adjustment. Minor repositioning of signs and/or signals may be necessary and the Contractor shall make the adjustments as directed by the City Traffic Engineer. Payment shall be included with the cost of the installation of the equipment.

ITEM 1310 - DEFINITIONS

SPECIFIED - Wherever "specified" is used herein, it shall mean "specified" in the invitation to bid and/or order to contract.

SIGNAL SECTION OR OPTICAL UNIT - That part of a traffic signal consisting of a housing with a lens, reflector and lamp for displaying a signal color.