

SECTION I GENERAL INFORMATION

1.1 STANDARDS BOOKLET

This booklet is issued by City Utilities of Springfield as a guide for obtaining electric service and to put forth the services available, conditions for service, and minimum standards for material and construction.

- 1.1.1 The standards herein supersede all previous service drawings issued by City Utilities of Springfield prior to this date and are subject to change without notice.
- 1.1.2 The standards herein are supplementary to, and are not intended to conflict with the rules and regulations of the City of Springfield Department of Building Development Services or Greene County Building Regulations, applicable city or county ordinances, the National Electrical Safety Code, and the National Electrical Code. Note that City Utilities' policy requirements for some clearances exceed National Electrical Safety Code requirements.

1.2 DEFINITIONS

- 1.2.1 The term "Customer," when used herein, means any person or company applying for, receiving, using, or agreeing to take a class of electric service or other service supplied by City Utilities of Springfield. Rules, regulations, standards, and policies contained herein that apply to customers, also apply to contractors and others who act upon the behalf of a customer.
- 1.2.2 The term "National Electrical Safety Code," or NESC, when used herein, means the current edition of the National Electrical Safety Code.
- 1.2.3 The term "National Electrical Code," or NEC, when used herein, means the current edition of the National Electrical Code as adopted by the City of Springfield Department of Building Development Services, Greene County Building Regulations or other municipal inspection authority at time of construction.

1.3 ACCESS FOR CITY UTILITIES EMPLOYEES AND AGENTS

The customer will give employees of City Utilities of Springfield and its authorized agents, when properly identified, full and free access to the premises of the customer at all reasonable hours and any time during an emergency. This access will be for installing, reading, inspecting, adjusting, repairing, maintaining, replacing, or removing any of the City Utilities facilities on the premises of the customer or for any other purpose incidental to the electric service supplied by City Utilities of Springfield.

1.4 METER TAMPERING

- 1.4.1 The customer shall not bypass, tamper with, engage in unauthorized metering, or otherwise interfere with the proper operation of City Utilities meters or other equipment or in any way interfere with proper metering registration. No meter will be bypassed without the express consent of the Power Quality Department.
- 1.4.2 Devices or attachments will not be connected to facilities in such a manner as to permit the use of un-metered energy except with prior written consent of City Utilities of Springfield.

1.4.3 Violators of provisions of this section may incur criminal and civil penalties as provided by Missouri Statutes.

1.5 ELECTRIC SERVICE

The electric service supplied by City Utilities is for the exclusive use of the customer on the premises to which such service is delivered. City Utilities will not supply new electric service to a customer for resale by the customer.

1.6 RATES

The rates for all types of electric service supplied by City Utilities are on file with the City Clerk's Office and the City Utilities Pricing Department. Upon request, representatives of City Utilities Pricing Department will explain rate schedules and assist in selection of the applicable rate best suited to the customer's requirements.

1.7 ATTACHMENT TO CITY UTILITIES POLES

Attachments of any kind to power or street light poles are NOT generally permitted. In certain cases, attachments to power or street light poles by other utility entities are granted through a Pole Attachment Agreement and/or written permission. Application for Pole Attachment Agreements should be made to the Supervisor – Electric T & D Engineering.

1.8 RENDITION AND CONTINUITY OF SERVICE

1.8.1 City Utilities shall have the right to discontinue, interrupt, or curtail service to any customer or refuse service to any customer, whether theretofore served or not, for any reason provided in City Utilities Service Rules and Regulations, or in accordance with any policies adopted by the Board of Public Utilities.

1.8.2 City Utilities does not guarantee constant, sufficient or continuous service. By application for service, each customer shall be deemed thereby to have agreed that City Utilities may interrupt, curtail, limit or suspend service at any time for any reason beyond the control of City Utilities or for any reason deemed necessary by City Utilities.

1.8.3 City Utilities will discontinue service entirely or terminate service to any installation, facility, appliance or device when, in the judgement of City Utilities, continuation of such service constitutes a safety or health hazard.

SECTION II
ELECTRICAL SAFETY AND CODE CLEARANCES

II.1 ELECTRICAL SAFETY AND CODE CLEARANCES

- II.1.1 It is the policy of City Utilities to operate the electric transmission and distribution system with care and safety for the public and City Utilities employees. The NESC is used for design, construction, maintenance, and operation of the electric transmission and distribution system by City Utilities as well as any associated activity by the public and private industry. The applicable NESC in effect at the time of installation will apply.
- II.1.2 City Utilities reserves the right to terminate service without prior notice when a hazardous condition exists.
- II.1.3 Illustrations of current electrical safety code clearances are shown on pages 58, 59, and 60 in section XXI of the booklet. These drawings are a guide for typical applications and are not intended to give all information that may be needed for specific situations. The current edition of the NESC should be consulted and will take precedence. A copy of the NESC can be reviewed at the office of the Supervisor – Electric T & D Engineering and at the Customer Engineering office.

II.2 MINIMUM CLEARANCE FROM OVERHEAD LINES

- II.2.1 For this section, the term "clearance" means the shortest distance between any two surfaces.
- II.2.2 Minimum clearance between any building or other structure and any overhead transmission line, overhead distribution facility, or electric utility pole will be maintained in accordance with the provisions of the NESC and the Overhead Power Line Safety Act of Missouri.
- II.2.3 Minimum clearance between signs, chimneys, radio and television antennas, storage tanks, and other structures, and any overhead transmission line, overhead distribution facility, or electric utility pole will be maintained in accordance with the provisions of the NESC and the Overhead Power Line Safety Act of Missouri.
- II.2.4 Minimum clearance over streets, alleys, parking lots, rights-of-way, easements, etc., by overhead distribution facilities, will be maintained in accordance with provisions of the NESC.
- II.2.5 Any person who proposes any action that would result in violation of the minimum clearances as set out in Section II of this document will give ninety days prior notice of such proposed action to the Director – Electric T & D Engineering. Any person who proposes to change the use of land or change the grade of land that would result in conflict with Section II of this document will give ninety days prior notice of such action. Upon such a notice, City Utilities will determine the feasibility of relocating such line, distribution facility, and/or electric utility pole which is in conflict with the proposed action to a suitable and safe location.
- II.2.6 Should City Utilities determine that such relocation is feasible, City Utilities will perform the necessary relocation at the expense of the person whose proposed action violates the minimum clearance requirement. Relocation of such overhead

transmission line, distribution facility, and/or electric utility pole may begin on a mutually agreed upon date.

- II.2.7 Should City Utilities determine that the relocation of a transmission line, distribution facility, and/or electric utility pole is not feasible, City Utilities may require action to prevent a violation of the minimum clearance requirement. Any action that City Utilities requires pursuant to this subsection will be performed at the expense of the person whose proposed action violates the minimum clearance requirement.

II.3 EQUIPMENT OPERATION AROUND ENERGIZED FACILITIES

II.3.1 OVERHEAD

- II.3.1.1 When operating equipment around overhead electrical lines, Federal Occupational Safety & Health Administration (OSHA) standards and Missouri state statutes require that the equipment maintain a minimum distance of 10 feet. Contacting the line can result in severe injury or death. If work must be accomplished near an overhead electrical line, contact Electric T & D Engineering at 831-8566 for assistance in avoiding contact with these energized facilities.
- II.3.1.2 In the event your equipment should come in contact with an overhead power line or if a broken power line falls on or around your equipment or personnel, the best thing to do is remain in place until City Utilities personnel can respond and give you safe clearance to move.
- II.3.1.3 If you must vacate an energized piece of equipment due to a life-threatening situation such as fire, jump from it, being extremely careful not to touch the piece of equipment and the ground at the same time. If you witness any emergency involving power lines, contact City Utilities for assistance at 863-9000.
- II.3.1.4 When performing tree trimming near energized power lines, you must stay a minimum of 10 feet away from the power line. If you need to trim or cut trees which are closer than 10 feet to a power line, you must contact a Forester at 831-8576 prior to proceeding.

II.3.2 SCHEDULED OUTAGES AND LINE COVER-UP

- II.3.2.1 City Utilities will de-energize a power line or place line cover-up for construction purposes, provided that no other customers are affected by this action and/or the integrity of the electric system is not damaged by the action. If a power outage or line cover-up is requested, a minimum of 7 working days advance notice is required, to complete the necessary paperwork and schedule the work with City Utilities construction crews. Contact Electric T & D Engineering at 831-8566 to request a scheduled power outage or line cover-up.
- II.3.2.2 The expense for the scheduled power outage or placement of line cover-up shall be borne by the party who requests the work be performed. A City Utilities engineer or technician will prepare a cost estimate and notify the person requesting the scheduled outage or line cover-up of the estimated cost. Included in this estimate are non-refundable labor charges for all work performed by City Utilities plus a \$250 refundable deposit on line cover-up. After City Utilities receives payment of the estimated charges the work will be scheduled with City Utilities construction crews. The deposit will be refunded when City Utilities receives a written request for cover-up removal.

II.3.3 UNDERGROUND

- II.3.3.1 All excavation shall be done in accordance with the Underground Facility Safety and Damage Prevention Act of Missouri.
- II.3.3.2 Grading or excavation work shall not be started until an underground facilities location has been completed. Digging into underground power lines can result in severe injury or death to the operator and others and can cause interruption of service to wide areas. Contact Missouri One-Call at 1-800-344-7483 (1-800-DIG-RITE) before you dig.

**SECTION III
SERVICE LIMITATIONS AND VOLTAGE STANDARDS**

III.1 GENERAL

- III.1.1 Service voltage classification availability will be dependent upon the customer's location with respect to existing facilities within a given service area. All electric service will be provided at 60Hz alternating current, with single phase and three phase available.
- III.1.2 City Utilities will generally provide voltage levels consistent with ANSI C84.1-1995 (R2005), that is, within $\pm 5\%$ of the nominal service voltage, for voltage classifications lower than 600V, at the point of common coupling with the customer. However, large motor starting currents, system abnormalities, and other events may produce temporary voltage conditions that deviate from this range.
- III.1.3 The standard service voltage classification for residential services is 120/240V single phase or 120/208V single phase for selected complexes.

III.2 OVERHEAD SERVICE AREA SECONDARY VOLTAGE CLASSIFICATIONS

Application	Nominal system voltage
1 Φ	120
1 Φ	120/240
1 Φ	120/208*
1 Φ ,3 Φ	120/208 4 wire wye
1 Φ ,3 Φ	120/240 4 wire delta
3 Φ	240 delta

*available at three phase 120/208 installations only

Reduced neutral conductors shall not be allowed for these service classifications.

III.2.1 THREE PHASE OVERHEAD SERVICES

All three phase overhead services will be served by closed transformer banks containing three transformers. If three phase distribution facilities are not available in the area, an open delta transformer bank connection can be used if two phases are available, however, this exception will require a signed waiver of liability to cover equipment damage from the person requesting the service.

III.3 UNDERGROUND SERVICE AREA SECONDARY VOLTAGE CLASSIFICATIONS

Application	Nominal system voltage
1Φ	120
1Φ	120/240
1Φ	120/208*
1Φ	277/480 **
1Φ,3Φ	120/208 4 wire wye
1Φ,3Φ	277/480 4 wire wye

*available at three phase 120/208 installations only

**available as a CT type service at three phase 277/480 installations only

Reduced neutral conductors shall not be allowed for these service classifications.

III.4 PRIMARY SERVICE

Primary voltage service is provided to customers who require voltage levels not provided by City Utilities, and optionally to customers with expected demands that exceed the demand requirements (300kW) specified by City Utilities rates and policies. Nominal primary voltage at City Utilities is 7.62/13.2 kV.

III.5 LARGE GENERAL POWER AND LARGE POWER SERVICES

Customers whose demands exceed 300kW during any 3 months of a 12-month period are subject to the provisions of the Large General Power Service Rate. If the customer's metered demand is greater than 1500kW, the Large Power rate shall apply.

III.5.1 POWER FACTOR

Customers classified in the Large General Power Rate are required to maintain a lagging power factor no less than 0.85 at all times. Power factor control equipment shall be sufficiently automated to prevent leading power factor at the point of common coupling at all times. Customers classified in the Large Power Rate are subject to a Power Factor charge at \$0.025 per kW billing demand for each whole percentage the monthly power factor is less than 100%. City Utilities Power Quality Department evaluates customer power factor and provides guidance to customers to appropriately size corrective equipment.

III.5.2 HARMONICS

Customers classified in the Large General Power and Large Power Service Rates are required to limit harmonic distortion to the levels described in IEEE Standard 519-1992, or the latest revision thereof, and are also required to comply with the City Utilities Power System Harmonics Control Policy. Harmonic evaluations and explanation of the City Utilities policy are available free of charge from the Power Quality Department.

III.6 POWER QUALITY

City Utilities recognizes that the proliferation of sensitive electronic equipment has increased customers' requirements and expectations from their electric services. The Power Quality Department investigates all power quality complaints and provides analysis services free of charge. A complete set of City Utilities Power Quality Guidelines is available from the Power Quality Department.

III.6.1 VOLTAGE TRANSIENTS

Modern power distribution networks are complex systems. Equipment failures, environmental factors, normal operation, and other events can produce short-duration voltage anomalies that may interfere with the consistent operation of sensitive electronic equipment. A customer may need special power conditioning devices to ensure reliable operation of equipment of this type. These protective devices are to be specified and provided by the customer, but the Power Quality Department is prepared to assist customers with information and recommendations. Contact the Power Quality Department at 831-8576 for more information.

III.6.2 MOMENTARY INTERRUPTIONS

- III.6.2.1 Power systems are equipped with circuit breakers and reclosers that serve to automatically restore electric service within several seconds after a temporary fault condition. Customers are encouraged to select electronic appliances that have short-term power outage carryover features.
- III.6.2.2 It is in the mutual best interest of City Utilities and its customers to provide highly reliable electric service. Customers that experience frequent outages should contact the Power Quality Department at 831-8576.

III.6.3 MOTOR LIMITATIONS

- III.6.3.1 All motors that are 10 horsepower and larger shall be three phase. All motors 20 horsepower and larger are to have characteristics that limit the starting current to no more than 300% of the full load current, or shall be equipped with a controlled starter that provides the same limitation.
- III.6.3.2 Exceptions to these rules can be granted under certain conditions. To request an exception, forward the following information to the Power Quality Department.
 - ◆ Horsepower rating
 - ◆ Full - load amps
 - ◆ Locked rotor amps
 - ◆ Frequency of starts / time
 - ◆ NEMA code
 - ◆ Name plate voltage
 - ◆ Location
- III.6.3.3 All three phase motors shall be equipped with protection against over and under voltage conditions and/or single and reversed phasing conditions. The customer shall provide these protective mechanisms.
- III.6.3.4 The motor limitations described in this section do not apply to primary metered customers, except in the case of equipment protection. If a primary metered customer wishes to install a 50 horsepower or greater motor without limiting the starting current, the customer should contact City Utilities Power Quality Department at 831-8576 prior to installation.

III.7 GENERATORS

III.7.1 EMERGENCY GENERATORS

All customers are required to notify City Utilities Power Quality Department when installing an emergency generator. All generators shall be installed to eliminate the possibility of operating in parallel with or back feeding into the City Utilities electrical system; a double-throw, double source main disconnect is required.

III.7.2 COGENERATION

It is the policy of City Utilities to allow qualified small power producers and co-generators to operate in parallel with the electrical system. The co-generator must meet the standards of FERC order 69 and all power quality requirements specified by City Utilities. Details of each case will be reviewed and coordinated by Electric T & D Engineering and Power Quality Departments.

**SECTION IV
RIGHTS-OF-WAY, EASEMENTS, AND ACCESS**

IV.1 TYPES OF EASEMENTS

City Utilities generally uses four types of easements. Following is a brief description of each easement type as it pertains to City Utilities and the typical use of that type of easement.

IV.1.1 STREET RIGHT-OF-WAY

The street right-of-way is generally considered the area that contains the roadway, curbs, gutters, sidewalks, and open areas up to the property line. Most overhead electric distribution lines and transformers are installed in the street right-of-way.

IV.1.2 PLATTED/DEDICATED EASEMENTS

Platted/Dedicated easements are provided to City Utilities by virtue of a dedication statement on the recorded plat. Typical platted easements in subdivisions to be served with overhead electric distribution are five feet side lot and five feet rear lot. Subdivisions to be served with underground electric distribution are typically platted with a five to ten feet (5' – 10') front easement along all roadways.

IV.1.3 CUSTOMER GRANTED EASEMENTS

Customer granted easements are granted to City Utilities by a customer, usually for the purpose of providing access for electric service to an individual property. This is generally used for distribution line extensions in areas that are not platted or in subdivisions where the plat has already been recorded. City Utilities requires the customer to grant, at no cost to City Utilities, easements for power lines and any associated equipment before any construction begins. In the event City Utilities has to cross property other than that of the customer requesting service to extend facilities, the requesting customer may be required to obtain or help obtain all necessary easements. No line construction will commence until all affected property owners are in agreement with the work to be done and their easements are properly recorded.

IV.1.4 RESTRICTIVE EASEMENTS/UTILITY RIGHTS-OF-WAY

Restrictive easements/utility rights-of-way generally contain high voltage transmission lines and substation equipment. Very strict requirements for the use of restrictive easements apply. Any customer use of this type of easement must be approved by City Utilities. All requests will be evaluated on an individual basis by contacting City Utilities Property Acquisition Administrator at 831-8364.

IV.2 EQUIPMENT ACCESS REQUIREMENTS

During the course of normal switching or in the event of an equipment failure or power outage, it is necessary for utility crews to have adequate access to City Utilities equipment. No trees, shrubs, fences, large landscape rocks, or other obstructions will be permitted in the access area. The access area is defined as three feet along the sides and back and ten feet in front of the equipment.

IV.3 GENERAL RESTRICTIONS OF EASEMENT/RIGHTS-OF-WAY

IV.3.1 For safety reasons it is necessary that easements and rights-of-way grades not be changed by excavation or filling without prior written approval of City Utilities. Full

cost of any alteration or relocation will be borne by the customer requesting the change.

- IV.3.2 It is permissible to install fences and landscaping on easements, except where such fences will prevent access to utility lines or conflict with utility equipment. and except in restrictive easements. Other permanent structures and buildings can not be placed on easements.

IV.4 AESTHETICS

- IV.4.1 Permanent structures cannot be constructed on easements, however, landscaping of easements is quite permissible. A minimum clearance is required around all junction enclosures and padmounted transformers. A distance of ten feet must be kept clear in front of all service doors and at least three feet to be left clear from the equipment pad on all sides. Call Missouri One-Call at 1-800-344-7483 (1-800-DIG-RITE) prior to digging.
- IV.4.2 Trees should be planted far enough away from padmounted equipment so at maturity, overhanging branches will not obstruct a crane setting or removing equipment.
- IV.4.3 Before planting trees or shrubs in the street right-of-way or utility easements contact a City Utilities Forester at 831-8576 for recommendations and guidelines. A free pamphlet describing acceptable plants and planting instructions is available.
- IV.4.4 Responsibility for upkeep and any landscaping maintenance in an easement is borne by the property owner or customer.

SECTION V
SUBDIVISION AND DEVELOPMENT PROJECTS

V.1 SUBDIVISION AND DEVELOPMENT PROJECTS

- V.1.1 Contact City Utilities Developer Services at 831-8888 when you begin the planning process for subdivisions or developments in and around Springfield. Keep in mind that City Utilities serves a very large area outside the Springfield city limits. City Utilities will examine your project in relationship to existing facilities and work with you to route electric utilities to your project.

- V.1.2 Electric facilities within a subdivision are usually installed underground. The developer will install the electric underground conduit and other equipment, with City Utilities reimbursement, as designed by Customer Engineering. Street crossings, for example, are installed before paving, and the Developer can coordinate the entire process to minimize delays. City Utilities crews will install the conductors, transformers, and street lights. If circumstances dictate, overhead electric construction is available and will be installed by City Utilities crews.

- V.1.3 The underground electric service is installed by the customer from City Utilities transformer or secondary service pedestal to the meter location. Single-phase underground electric services are currently eligible for a \$100 rebate from City Utilities.

**SECTION VI
COMMERCIAL PROJECTS**

VI.1 COMMERCIAL PROJECTS

- VI.1.1 Contact City Utilities Developer Services at 831-8888 when you begin the permitting process for commercial projects. Keep in mind that City Utilities serves areas outside the Springfield city limits. City Utilities will review your project in relationship to existing facilities and work with you to route electric utilities to your project.
- VI.1.2 If your project is located within the City of Springfield, the Building Development Services department will forward plans and City Utilities Commercial Electric Service data sheet (page 14) to City Utilities' Developer Services department for review while Development Services reviews the submittal. City Utilities' review comments will be available from the City of Springfield's website, the Building Development Services department, or City Utilities' Developer Services department.
- VI.1.3 If your project is located outside the City of Springfield, submit the plans and City Utilities Commercial Electric Service data sheet (page 14) directly to City Utilities' Developer Services department (831-8888). A letter with review comments will be forwarded to the permitting authority listed in SECTION IX – Electric Permits, and the submitting engineer/architect.

Commercial Electric Service Data Sheet

Service Address _____

**Consulting Engineer
Mailing Address** _____

Service Type Overhead Underground

Voltage Class

- 1-phase, 120V
- 1-phase, 120/240V
- 1-phase, 120/208V (available at 3-phase, 120/208V installations only)
- 1-phase, 277/480V (available at 3-phase, 277/480V installations only)
- 3-phase, 4-wire, 120/208V wye
- 3-phase, 4-wire, 120/240V delta (overhead only)
- 3-phase, 4-wire, 277/480V wye (underground only)

3-phase, 3-wire, 240V delta is not available

Load Data (kVA) Heating _____ Cooling _____ Seasonal > 10kVA _____

Total Connected _____ Total Demand _____ (Summer Winter)

Largest motor _____ Justify any 3-phase Voltage Class with
(over 10hp) Total Demand < 75 kVA in Other Information.

Drawing Checklist For each property, locate all buildings, firewalls, and service equipment.

For each service, identify each

- main OCP* device(s) and ampacity.
- conduit, gutter, and wire size.

For each meter, identify

- any existing address, Voltage Class, and OCP* device,
- any CT meter on transformer and 1" PVC conduit for meter communications if applicable.

*OCP – over-current protective device (i.e. disconnect or breaker).

Other Information _____

Questions? Call City Utilities Developer Services 831-8888

Send to Developer Services (FAX 831-8549)

**SECTION VII
SYSTEM ALTERATION AND CONVERSION**

VII.1 CONVERSION OF EXISTING SYSTEM

- VII.1.1 All relocations and/or alterations of existing overhead and underground lines and equipment will be accomplished at the expense of the customer initiating the request on an estimated cost basis. The customer will be required to provide all necessary easements and right-of-way without cost to City Utilities. The request must be submitted allowing ample time for City Utilities to investigate, engineer, schedule, and construct the alterations. All relocation and/or alteration requests should be made to City Utilities Electric T & D Engineering at 831-8566.

Note: For overhead to underground conversions, City Utilities does not guarantee that other utility facilities, such as telephone equipment or cable television, which may be attached to City Utilities poles, will be placed underground. For further information, these utilities should be contacted individually.

VII.1.2 REQUIREMENTS FOR WORK PERFORMED ON TIME-AND-MATERIAL BASIS

The requestor will pay the full amount of the estimate to the City Utilities Developer Services Representatives prior to the scheduling of the work.

VII.2 CONVERSION OF SINGLE RESIDENTIAL OVERHEAD SERVICE TO UNDERGROUND

- VII.2.1 In the event the property owner requests conversion of the service conductor from overhead to underground, the customer must convert his service entrance equipment from overhead to underground and install his service lateral conductor. This conversion must be approved by the appropriate inspection authority for that area.

- VII.2.2 City Utilities will place a pedestal within five (5) feet of City Utilities pole, remove the overhead service and install underground secondary conductor to the pedestal. The customer is responsible for digging the ditch from his service equipment to the new pedestal site. The customer's electrician will place the conduit, ells, and conductor from the customer's service equipment to the pedestal. The electrician or property owner will be responsible for closing the ditch and re-landscaping. The property owner will assume all costs incurred in replacing fences, sod, trees, shrubs, other landscaping items, and the repair of damages to, or the remodeling of, building structures. City Utilities will provide the conduit and ells required to go from the pedestal to the pole. City Utilities will charge a flat rate of \$900 for this service. If the customer wishes to trench and install the conduit and ells from the pole to the pedestal and install the pedestal, the flat rate charge will be decreased to \$600.

VII.3 LINE EXTENSION REQUIREMENTS

Extension of distribution or transmission facilities to a point of delivery to the customer will be made subject to the current City Utilities extension policy. Contact Developer Services for line extension information.

VII.4 SINGLE PHASE TO THREE PHASE CONVERSIONS

City Utilities will rebuild its single-phase facilities to accommodate a three-phase service request under the following conditions:

- ◆ Revenue generated from the addition of the three-phase load will justify the cost of rebuilding the facilities to three-phase per the current City Utilities extension policy.
- ◆ Persons who request three phase service pay the cost of rebuilding the facilities to three-phase.
- ◆ A combination of the above two conditions.

SECTION VIII METERING

VIII.1 METER INSTALLATION AND OWNERSHIP

- VIII.1.1 All meters, overhead service drops, and other electrical facilities installed by City Utilities at the expense of City Utilities at a customer's premise for the purpose of delivering or measuring energy to the customer, will continue to be the property of City Utilities.
- VIII.1.2 The customer will provide and maintain without cost to City Utilities sufficient and proper facilities for the installation of meters and other apparatus at a readily accessible location.

VIII.2 METER LOCATIONS AND CLEARANCES

The locations of meters and metering equipment will be designated by City Utilities where they will be readily accessible at all reasonable hours for reading, testing, inspecting, and other maintenance purposes. All meter locations shall be outside unless prior approval is obtained from City Utilities. No wiring dependent upon the meter location should be started until the location has been definitely assigned. Contact Customer Engineering at 831-8891 prior to performing any work on an existing service or installing any new service. Following are general guidelines applicable to all meter installations. Refer to the appropriate Service Standard for more information.

1. Meter sockets will be plumb and securely fastened to the outside building wall.
2. Meter sockets will be installed five to seven feet above finished grade or permanent platform.
3. Meter sockets shall not be installed under projections lower than six feet.
4. A minimum of five feet of clear space must be left in front of meter.
5. Electric meters will be located at least five feet horizontally from gas meters.
6. All above ground conduit on the line side of the meter will be galvanized rigid steel except as noted in specific standards; in all cases the conduit shall meet the requirements of the appropriate inspection authority and the NEC.

VIII.2.1 OUTDOOR METER LOCATIONS

Outdoor meters will not be installed where they will interfere with traffic, sidewalks, driveways, or where they will obstruct the opening of doors or windows, or in any location which may be considered hazardous or cause damage to the metering equipment.

VIII.2.2 MULTIPLE OUTDOOR METERS

Where service is supplied to individual customers located in a structure designed for multiple occupancy, the individual outdoor meters will be grouped at a point near the service entrance and must be as specified by the appropriate inspection authority, the NEC, and the appropriate City Utilities Service Standard.

VIII.3 CURRENT TRANSFORMER METERING

- VIII.3.1 Current transformers (CTs) are required if load (main disconnect size) exceeds 400A, for all voltage classifications except for single phase 120/208V. For single phase 120/208V, CTs are required for any service exceeding 200A. Although 400A, self-contained metering is available for most voltage classifications, City Utilities strongly

recommends the use of CT metering for any service exceeding 200A, if there is a chance that the service will need to be upgraded at some point in the future.

- VIII.3.2 CT and meter socket locations must be approved by the Power Quality Department prior to installation. If the CTs are to be located a distance greater than 40 feet from the meter socket or if the CTs are to be located in an enclosure other than a dedicated CT cabinet, the location must be approved by the Power Quality Department. CTs are furnished by the Power Quality Department and may be picked up at 825 N. Belcrest. CTs are installed into the enclosure by the customer.
- VIII.3.3 Under certain circumstances, City Utilities may allow CT metering to be installed at a City Utilities distribution transformer. In these cases, a CT cabinet is not required, but an approved meter socket must still be provided by the customer to be installed by City Utilities on the transformer. Single phase CT metering in distribution transformers requires that the customer furnish and install an approved meter pedestal and conduit from the meter to the pedestal.
- VIII.3.4 Where CT cabinets are required, they will be furnished and installed at the approved location by the customer. All cabinets shall be raintight and shall be equipped with a suitable latch that will be exclusively locked and sealed by City Utilities; all raceways and compartments ahead of the metering will also be exclusively locked and sealed by City Utilities. CT cabinet dimensions will be as specified in the appropriate City Utilities Standard. Preferably, CT cabinets will be installed immediately adjacent to the associated meter socket, however, installations are generally accepted if the meter socket is within 40 feet of the CT cabinet. Distances longer than 40 feet may be approved by the Power Quality Section.
- VIII.3.5 If CTs are required for a service, the customer shall furnish and install a conduit no less than 1 inch in diameter between the meter socket and the CT location for the exclusive use of City Utilities. This conduit is not necessary when the CT's are installed by City Utilities in a three-phase distribution transformer. The maximum total length of this conduit shall be no greater than 40 feet, with no more than three 90-degree bends in a single pull section, unless approved by the Power Quality Department. No LB type elbows or elbows with removable covers shall be allowed. The Power Quality Department will install and terminate conductors from the CT secondary to the meter socket using the customer-furnished conduit.
- VIII.3.6 Customers served under the large general power service rate, the Large Power Service Rate or the Interruptible Power Service Rate shall provide City Utilities access to plant telephone service or grant public communications access to install communications service for metering purposes. City Utilities will be responsible for installation and modifications required to make communications available at the electric meter set.

VIII.4 METER SOCKETS

All meter sockets used on secondary voltage classifications are to be furnished and mounted by the customer. These sockets shall be manufactured in accordance with the latest revision of ANSI C12.7, ANSI / UL 50, ANSI / UL 414, and NEMA 250, as well as all other applicable codes and standards, including the latest revision of the NEC.

VIII.4.1 GENERAL REQUIREMENTS FOR METER SOCKETS

- VIII.4.1.1 Meter sockets will be constructed of 16-gauge or heavier galvanized sheet steel, and finished with a neutral gray baked-on enamel or similar coating. All socket enclosures will be suitable for outdoor installation (raintight).
- VIII.4.1.2 The cover shall be of the same material and finish as the enclosure. Ring-type and ringless-type covers are acceptable. Ringless covers will be designed for

sealing with a padlock type seal and removable without removing any screws or bolts. All covers will be designed such that removal of any secured portion is not possible without first removing a padlock seal.

- VIII.4.1.3 Combination meter socket pedestals with service disconnect equipment are acceptable only if they meet other requirements of this document and also maintain separation between line and load access such that all line side access is exclusively locked and sealed by City Utilities.

VIII.4.2 SOCKET JAWS AND TERMINALS

- VIII.4.2.1 All jaws and terminals shall be securely and permanently mounted to the socket and shall not be removable without removing bolts or screws; plug in terminals in sockets are never acceptable. All jaws, terminals, and buss ducts shall be rated 600V.
- VIII.4.2.2 Meter sockets for apartments and residential complexes shall have jaws and terminals rated for no less than 100A. Meter sockets for commercial installations shall be rated no less than 200A.

VIII.4.3 METER SOCKET BONDING

- VIII.4.3.1 Since all service equipment may experience high currents in the event of a ground fault, it is imperative that meter sockets and conduits be effectively bonded to neutral and ground. Effective bonding is to be achieved through the use of threaded fittings in a rigid metal conduit system where the joints are to be made wrench tight. Locknuts and bushings do not fulfill the effective bonding requirement. All bonding apparatus shall meet the requirements of the appropriate inspection authority.
- VIII.4.3.2 The NEC requires common bonding of all utilities, including cable television, telephone, and electrical systems. It is the customer's responsibility to provide adequate access to the electric system grounding electrode or grounding electrode conductor such that this requirement can be satisfied by the various utilities.

VIII.4.4 METER SOCKET WIRING

Customers will wire all self-contained meter installations in accordance with the appropriate City Utilities Service Standard. Wiring of all transformer rated meters will be performed by the Power Quality Department.

VIII.5 MOVING OR REMOVING METERS AND METERING EQUIPMENT

The customer shall not tamper or otherwise interfere with the proper operation of City Utilities meters or other equipment, nor in any way interfere with the proper registration of the used electric energy. Only authorized City Utilities employees are permitted to connect, disconnect, move, or remove meters or service drops.

VIII.6 DEMAND MANAGEMENT SUPPORT AND PULSE INITIATORS

- VIII.6.1 City Utilities shall provide pulse initiator outputs at a convenient junction location to be determined by City Utilities near the location of the electric meter. Pulse initiators are provided free of charge, however, the customer is responsible for all wiring downstream of the junction location determined by City Utilities.
- VIII.6.2 Customers desiring to use this service should contact the Power Quality Department at 831-8576 with their request. The customer should provide all technical requirements of their intended demand monitoring/management system. The Power Quality Section will determine the appropriate output parameters and execute the required wiring to the junction location.

VIII.7 MARKING OF MULTIPLE METER SOCKETS

- VIII.7.1 The electrical contractor who installs the wiring shall plainly mark each meter of a multiple meter installation and all individual meter pedestals with a permanently attached metal or hard plastic tag showing which apartment, office, or unit is metered by each meter. The letters or numbers shall be of the permanent stenciled type and must be at least 3/8 inches in height.
- VIII.7.2 Meters will not be installed until all sockets are tagged correctly. In the event that internal numbering or lettering schemes are changed or incorrect tagging creates inaccurate information in the City Utilities records, the owner of the premises will be responsible for all expenses incurred in correcting the situation.

**SECTION IX
ELECTRIC PERMITS**

IX.1 ELECTRIC PERMITS

IX.1.1 You must acquire an electric permit before performing any type of electric work inside the Springfield city limits or outside the Springfield city limits in Greene County.

IX.1.2 Permits within the Springfield city limits are obtained by contacting:

Department of Building Development Services
840 N Boonville
Springfield, MO 65802
Phone: 417-864-1055

Permits may be issued only to licensed and bonded electrical contractors.

IX.1.3 Permits within the Battlefield city limits are obtained by contacting:

City of Battlefield
5434 S. Tower Drive
Battlefield, MO 65619
Phone: 417-883-5840

IX.1.4 Permits within Greene County, outside the city limits, are obtained by contacting:

Greene County Building Regulations
940 N Boonville, Room 305
Springfield, MO 65802
Phone: 417-868-4015

IX.1.5 Permits within Republic city limits, are obtained by contacting:

City of Republic
Planning and Development Department
225 N. Main St
Republic, MO 65738
417.732.3354

IX.1.6 It is the customer's or contractor's responsibility to obtain the permit from the appropriate inspection authority, complete all work, and notify the inspector when the work has been completed and is ready for an inspection.

**SECTION X
CONSTRUCTION TEMPORARY SERVICES**

X.1 APPLICATION FOR SERVICE

- X.1.1 Temporary service requests are initiated by contacting City Utilities Developer Services at 831-8888.
- X.1.2 Developer Services will complete your application, prepare a work order for the Electric Line Operations Department, and collect the appropriate deposits or fees.
- X.1.3 The fee charged by City Utilities for a temporary service provides for connecting the temporary at the beginning of a project and disconnecting it upon completion of the project. Additional fees will be charged if the customer requests the temporary to be disconnected and then reconnected at a different location.
- X.1.4 On large projects where more than one temporary service is needed, the customer shall pay a temporary fee for each temporary connection.
- X.1.5 If line construction is required before your temporary can be connected, your application will be routed to a City Utilities engineer who will meet with you, discuss your request, prepare construction drawings, and determine the additional cost to you for City Utilities to do the required work.

X.2 TYPES AND INSPECTION OF TEMPORARY SERVICES

X.2.1 Temporary services at City Utilities are classified by type.

- X.2.1.1 TYPE 1 is the most common temporary service constructed to meet City Utilities Standard SO-TEMP or SU-TEMP. This service is normally used to provide residential and small commercial temporary construction power. It is limited to a maximum of 100 amps and to not more than 6 breakers in the breaker box.

City Utilities checks each TYPE 1 temporary service for safety and conformity with the appropriate City Utilities standard. Services with safety concerns (in City Utilities opinion) or not meeting City Utilities standards will not be connected and will be "red tagged."

The red tag will be attached to the service equipment. It will indicate the problem(s) found with the temporary service.

Correction of these problems is the customer's responsibility. After the problems have been corrected, please notify City Utilities at one of the numbers shown on the red tag. City Utilities normally re-checks temporary services the next business day. If the customer requires a same day re-check an additional fee will apply.

City Utilities will, under normal circumstances, connect your temporary service one to two working days after receiving notification that the problem has been corrected.

- X.2.1.2 TYPE 2 temporary service is used for larger commercial projects where more than a 100 amp service or more than 6 breakers in the breaker box are needed to meet the customer's requirements. These services shall use City Utilities Standards SO-TEMP or SU-TEMP as general guidelines for building the service.

An inspection is required for all TYPE 2 temporary services. Inside the Springfield city limits, the City Electric Inspectors will inspect the service. A

permit is required and installation must be performed by a licensed electrical contractor. Outside the Springfield city limit, the Greene County inspectors or other municipal inspection authorities will inspect the service. In Greene County the electrician must obtain a permit before doing any work on the service. It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

- X.2.2 Temporary service is restricted to a time period not to exceed 6 months.
 - X.2.3 The customer is required to furnish and install all materials for the temporary service.
 - X.2.4 The temporary service must be self-supporting; it may not be attached to any City Utilities pole or equipment for support. It must be equipped with ground fault circuit interrupters and will conform in all aspects to the current edition of the NEC and NESC.
 - X.2.5 TYPE 1 overhead temporary services shall be located at least 10 feet and not more than 80 feet from City Utilities poles and equipment.
 - X.2.6 Location of TYPE 2 temporary services will be determined by City Utilities on a case-by-case basis.
 - X.2.7 Underground temporary services shall be located 5-10 feet from City Utilities transformers or secondary service pedestals.
- X.3 SCHEDULING OF TEMPORARY SERVICE CONNECTS
- X.3.1 Before City Utilities can connect a TYPE 1 standard construction temporary service, a correctly addressed work order for the service must be obtained.
 - X.3.2 Before City Utilities can connect a TYPE 2 construction temporary service, a correctly addressed meter order for the service and an inspection approval from the appropriate inspection authority must be obtained
 - X.3.3 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
 - X.3.4 City Utilities will, under normal circumstances, connect your temporary service one to two working days after receiving notification the service is ready to be connected and receiving an inspection approval if required.
 - X.3.5 City Utilities will not connect any service in which an unsafe condition exists.

SECTION XI
SPECIAL EVENT SERVICES

XI.1 APPLICATIONS OF SPECIAL EVENT SERVICES

A special event service would provide service to:

- ◆ Firework Stands
- ◆ Food or Drink Stands
- ◆ Christmas Tree Stands
- ◆ Carnivals
- ◆ Portable Greenhouses
- ◆ Short Term (1 - 2 Day) Events

XI.2 TYPES OF SPECIAL EVENT SERVICES

XI.2.1 Special event services are divided into two classifications.

XI.2.1.1 Classification 1 Special Event Services are served from a permanent customer meter pole.

City Utilities prefers serving special event services by this method. The service is constructed to meet City Utilities Standards SO-MP 100 or SO-MP 200. For these installations, a main breaker box is required, with sub-breakers to serve the individual customer requirements. All 120-volt receptacles shall be protected by ground fault circuit interrupters.

XI.2.1.2.1 The meter pole must be permanently tagged with numbers 3 inches high, which show the correct street address.

XI.2.1.2.2 This type of service requires the inspection of the original installation by the appropriate inspection authority. The service must be installed by a licensed electrical contractor. Once disconnected this service may not be reconnected until after a safety check is performed by City Utilities. This service remains on-site for future use.

XI.2.1.2 Classification 2 Special Event Services are served by the customer installing a Type I construction temporary service.

XI.2.1.2.1 The service is constructed to meet City Utilities Standard SO-TEMP for overhead applications, or SU-TEMP for underground applications. When using a Type I temporary service to serve a special-event customer inside the city limits, the service must be installed by a licensed electrical contractor.

XI.2.1.2.2 The customer is required to pay the normal charge for a temporary service.

XI.2.1.2.3 An inspection is required each time this type of service is connected.

XI.2.1.3 Special event services are restricted to a continuous time period not to exceed 3 months.

XI.2.1.4 The customer is required to furnish and install all materials for the service.

XI.2.1.5 The service must be self-supporting, and it may not be attached to any City Utilities pole or equipment for support. It must be equipped with ground fault circuit interrupters and conform in all aspects to the current edition of the NEC and NESC.

XI.2.1.6 Overhead services shall be located at least 10 feet and not more than 80 feet from City Utilities poles and equipment.

XI.3 APPLICATION FOR SPECIAL EVENT SERVICE

XI.3.1 Classification 1 special event service requests for existing meter poles are initiated by contacting City Utilities Commercial Accounts at 831-8315 or 831-8316.

XI.3.2 Classification 1 special event service requests involving new meter pole installations are initiated by contacting City Utilities Developer Services at 831-8888. City Utilities will determine the location of the meter pole.

XI.3.3 Classification 2 special event service requests are initiated by contacting City Utilities Developer Services at 831-8888.

XI.3.4 Commercial Accounts or Developer Services will complete your application, prepare a work order, and collect the appropriate deposits or fees.

XI.3.5 The fee charged by City Utilities for a special event service provides for connecting the service at the beginning of an event and disconnecting it upon completion of the event.

XI.3.6 If line construction is required before your service can be connected, your application will be routed to a City Utilities Engineer who will meet with you, discuss your request, prepare construction drawings, and determine if you will be required to pay additional costs for City Utilities to do the required work.

XI.4 INSPECTION OF SPECIAL EVENT SERVICES

XI.4.1 A special event service must be initially inspected by the appropriate inspection authority before it can be connected by City Utilities.

XI.4.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

XI.5 SCHEDULING OF SPECIAL EVENT SERVICE CONNECTS

XI.5.1 Before City Utilities can connect an electric service, we must have a correctly addressed work order for the service and, when required, an inspection approval from the appropriate inspection authority.

XI.5.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.

XI.5.3 City Utilities will, under normal circumstances, connect your service one to two working days after receiving the inspector's approval.

SECTION XII
PERMANENT OVERHEAD SERVICES

XII.1 APPLICATION FOR SERVICE

- XII.2.1 Permanent service requests are initiated by contacting City Utilities Developer Services at 831-8888.
- XII.2.2 Developer Services will complete your application, prepare a work order for the Electric Line Operations Department, and collect the appropriate deposits or fees.
- XII.2.3 If line construction is required before your service can be connected, your application will be routed to a City Utilities Engineer who will meet with you, discuss your request, prepare construction drawings, and determine if you will be required to pay additional costs for City Utilities to do the required work.

XII.2 INSPECTION OF PERMANENT SERVICES

- XII.2.1 A permanent service must be inspected by the appropriate inspection authority before it can be connected by City Utilities.
- XII.2.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

XII.3 SCHEDULING OF PERMANENT SERVICE CONNECTS

- XII.3.1 Before City Utilities can connect an electric service, we must have a correctly addressed work order for the service and an inspection approval from the appropriate inspection authority.
- XII.3.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
- XII.3.3 City Utilities will, under normal circumstances, connect a new service one to two working days after receiving the inspector's approval.

XII.4 OVERHEAD SERVICES

- XII.4.1 The customer must furnish, install, and maintain the electrical service which consists of a service disconnect device, meter socket, CT enclosure (if required), service entrance conductor, service entrance conduit, weatherhead, point of attachment, and other related items.
- XII.4.2 City Utilities furnishes and installs the service drop conductor from the City Utilities pole to your service point of attachment, makes the connections at the pole, the service entrance (weatherhead), and sets a meter in the meter socket.

XII.5 SERVICE/METER LOCATION

- XII.5.1 City Utilities reserves the right to determine service and meter locations and service attachment heights.
- XII.5.2 Refer to the Metering Section of this manual for specific guidelines regarding electric meter locations and installations.

XII.5.3 Questions concerning service or meter locations should be directed to the City Utilities Customer Engineering Department at 831-8891.

XII.6 POINT OF ATTACHMENT

XII.6.1 The point of attachment (the place where City Utilities service drop conductors attach to the structure or service entrance conduit shall be on the outside of the building where it can be satisfactorily reached from a City Utilities pole.

XII.6.2 The point of attachment must be positioned so the service drop conductor will meet all horizontal and vertical clearances required by the NEC and NESC. See City Utilities clearance specification drawings in this booklet. If you have questions about clearance requirements, contact our Electric T & D Engineering Department at 831-8566 or Customer Engineering Department for assistance at 831-8991.

XII.7 METHOD OF ATTACHMENT

XII.7.1 On residential services the preferred method of attachment is to extend a 2-inch rigid conduit riser between 36 inches and 48 inches above the roof.

XII.7.2 On all new or remodeled buildings, the customer may install an insulated neutral clevis or other dead-end insulating device of adequate strength to support the service drop conductor. On buildings of masonry or fireproof construction, dead-end devices are to be mounted by means of through bolts set in the structure.

XII.7.3 Service knobs will not be placed in the roof. A minimum of 2 inches of thread length into a solid framing member (stud) is required to use a service knob. Service knobs with a four-inch thread length are recommended.

XII.7.4 On metal buildings, the contractor must provide an attachment point strong enough to support the service drop conductor. The attachment point must be attached to the building frame to provide adequate support.

XII.7.5 For services larger than 200 amps, the contractor should contact Customer Engineering at 831-8891 to determine height of attachment and type of attachment required.

XII.8 SERVICE ATTACHMENT HEIGHTS

XII.8.1 The minimum attachment height for a single-phase residential service is 12 feet above finished grade. Refer to City Utilities service standard drawing SO- ATT for more information.

XII.8.2 The minimum attachment height for a three phase or commercial service is 15 feet above finished grade. Refer to City Utilities service standard drawing SO- ATT for more information.

XII.8.3 If the City Utilities service drop conductor must cross a street or driveway, a higher attachment height may be required. Refer to City Utilities service standard SO - CLEAR for more information.

XII.9 LENGTH OF SERVICE DROP

XII.9.1 The length of service drop is the distance from the City Utilities pole to the customer's point of attachment. For most residential services, 80 feet is the maximum length allowed for a service drop.

XII.9.2 To meet minimum clearances required by the NEC and NESC, it may be necessary to provide City Utilities with a higher point of attachment. In some cases, the customer may be required to move the service location or point of attachment closer to a City Utilities pole.

XII.10 SERVICE DROP POLES

XII.10.1 A service drop pole may be required when length of the service drop is excessive or proper clearances cannot be maintained, or the size of the service drop conductor would cause excessive mechanical strain upon either the customer's structure or City Utilities pole.

XII.10.2 The service drop pole is normally placed on the property being served by the electric service.

XII.10.3 When more than one customer is served by a service drop pole, an easement may be required before the pole can be installed.

XII.10.4 If a service drop pole is installed to re-route an existing service or to reach a service location other than one approved by City Utilities, the customer will be required to pay the total cost of installing the pole. Requests by customers for City Utilities to install additional poles or equipment should be handled through City Utilities Developer Services at 831-8888.

SECTION XIII
PERMANENT UNDERGROUND SERVICES

XIII.1 APPLICATION FOR SERVICE

- XIII.1.1 Permanent service requests are initiated by contacting City Utilities Developer Services at 831-8888.
- XIII.1.2 Developer Services will complete your application, prepare a work order for the Electric Line Operations Department, and collect the appropriate deposits or fees.
- XIII.1.3 If line construction is required before your service can be connected, your application will be routed to a City Utilities Engineer who will meet with you, discuss your request, prepare construction drawings, and determine if you will be required to pay additional costs for City Utilities to do the required work.

XIII.2 INSPECTION OF PERMANENT SERVICES

- XIII.2.1 A permanent service must be inspected by the appropriate inspection authority, before it can be connected by City Utilities.
- XIII.2.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

XIII.3 SCHEDULING OF PERMANENT SERVICE CONNECTS

- XIII.3.1 Before City Utilities can connect an electric service, we must have a correctly addressed work order for the service and an inspection approval from the appropriate inspection authority.
- XIII.3.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
- XIII.3.3 City Utilities will, under normal circumstances, connect a new service one to two working days after receiving the inspectors approval.

XIII.4 UNDERGROUND SERVICES

The customer is required to furnish, install and maintain all service equipment. This consists of a service disconnect device, meter base, CT enclosure (if required), service protection conduit, service lateral conduit, service lateral conductor, and other related items.

XIII.4.1 SERVICE/METER LOCATION

- XIII.4.1.1 City Utilities reserves the right to determine meter locations.
- XIII.4.1.2 Refer to the Metering Section of this manual for specific guidelines regarding electric meter locations and installations.
- XIII.4.1.3 Questions concerning service or meter locations should be directed to the City Utilities Customer Engineering Department at 831-8888.

XIII.4.2 CUSTOMER CONNECTIONS TO CITY UTILITIES EQUIPMENT

- XIII.4.2.1 City Utilities maintains a no-dig zone within three feet of any City Utilities transformer, pedestal, or other underground electrical equipment. Excavations required within this area will be performed by City Utilities.
- XIII.4.2.2 City Utilities provides 2 inch conduit stub-outs at all transformer and secondary service pedestal locations. The customer shall connect his service lateral conduit to this stub-out. If you cannot locate the stub-out, or if you need additional stub-outs, call the City Utilities Electric Dispatchers at 831-9000 for assistance.
- XIII.4.2.3 When the customer is ready to install the service lateral conductor in the conduit, he must notify the City Utilities Electric Dispatchers one working day in advance to unlock the transformer or break the seal on the secondary service pedestal.
- XIII.4.2.4 Customers are granted access into City Utilities equipment for the purpose of installing their service conductors into their conduit. During this period, the customer is responsible for maintaining the safety of the equipment and personnel working in or near the energized equipment, and in no case shall the customer leave the open transformer or pedestal unattended.
- XIII.4.2.5 When the customer installs his service lateral conductor from his meter base to City Utilities equipment, he shall leave enough conductor to extend a minimum of 3 feet above the base of the transformer, or a minimum of 2 feet above the top of a secondary service pedestal.
- XIII.4.2.6 City Utilities will provide all connectors and make all connections in City Utilities transformers and secondary service pedestals.

XIII.5 UNDERGROUND SERVICE IN AREAS SERVED BY UNDERGROUND POWERLINES

- XIII.5.1 In residential subdivisions, City Utilities transformer or secondary service pedestal is typically installed on the street side of each lot.
- XIII.5.2 When an existing transformer or secondary service pedestal is present on your property, the underground service must be extended to it by the customer.
- XIII.5.3 Should two pieces of City Utilities equipment be on your lot, contact Customer Engineering at 831-8991 to determine which source to use for service.

XIII.6 UNDERGROUND SERVICE IN AREAS SERVED BY OVERHEAD POWERLINES

- XIII.6.1 In areas served by City Utilities overhead powerlines, there are four options by which a customer may receive a new underground electric service.
 - XIII.6.1.1 The first option is for the customer to install a customer meter pole, per City Utilities service standard SO-MP 100 or SO-MP 200. The customer is required to furnish and install the pole and all service equipment. City Utilities will install an overhead service drop to the customer's meter pole, make the connections at the customer's weatherhead, and set a meter. There are no construction charges from City Utilities for this option.
 - XIII.6.1.2 The second option is for the customer to install a customer riser pole. The pole and equipment is furnished and installed by the customer per City Utilities standard SO-RP. The customer installs his underground service as outlined in

section XIII.3. City Utilities installs an overhead service drop to the customer's pole, makes connections at the weatherhead, and sets a meter. There are no construction charges from City Utilities for this option.

XIII.6.1.3 The third option is for the customer to request City Utilities to install a secondary service pedestal next to an existing City Utilities pole. After City Utilities completes its work, the customer then installs his underground service as outlined in this section. There are no construction charges from City Utilities for this option.

XIII.6.1.4 The fourth option is for the customer to pay City Utilities to install an underground primary powerline and a padmounted transformer. If the customer chooses this option, a City Utilities Engineer will determine the cost and feasibility of the installation. After City Utilities completes its work, the customer would install his underground service as outlined in this section.

XIII.7 MAXIMUM NUMBER AND SIZE OF CONDUCTORS IN A TRANSFORMER

XIII.7.1 City Utilities has limited the number and size of service conductors that may be installed by a customer into a City Utilities transformer. Limitations provide safety, working space, secondary/service connectors (furnished and installed by City Utilities), and ease of equipment replacement.

XIII.7.2 Use the following tables to determine maximum number and size of conductors that can be placed in a transformer. **(Contact the project engineer to receive approval for other conduit and conductor combinations).**

MAXIMUM NUMBER OF CONDUITS AND CONDUCTORS SINGLE PHASE TRANSFORMERS							
Transformer Size	Service Voltage	Max # of Conduits			Max # of Conductors per leg		
		2"	4"	6"	250 MCM	500 MCM	750 MCM
25 kVA	120 /240	6			6	N/A	N/A
50 kVA	120 /240	6			6	N/A	N/A
100 kVA	120 /240	6			6	N/A	N/A
			3			3	N/A
167 kVA	120 /240	6			6	N/A	N/A
			3			3	N/A

NOTE: Maximum numbers of conduits and conductors are limited by City Utilities transformer connections.

MAXIMUM NUMBER OF CONDUITS AND CONDUCTORS THREE PHASE TRANSFORMERS							
Transformer Size	Service Voltage	Max # of Conduits			Max # of Conductors per leg		
		2"	4"	6"	250 MCM	500 MCM	750 MCM
75 kVA	120 / 208	8			8	N/A	N/A
			4			4	N/A
150 kVA	120 / 208	8			8	N/A	N/A
			4			4	N/A
225 kVA	120 / 208	8			8	N/A	N/A
			6			6	N/A
300 kVA	120 / 208 120 / 240	8			8	N/A	N/A
			6			6	N/A
500 kVA	120 / 208 277 / 480		6			6	N/A
				3			3
750 kVA	120 / 208 277 / 480		6			6	N/A
				3			3
1000 kVA	277 / 480		7			7	N/A
				4			4
1500 kVA	277 / 480		7			7	N/A
				4			4
2000 kVA	277 / 480		7			7	N/A
				4			4
2500 kVA	277 / 480		7			7	N/A
				4			4
NOTE: Maximum numbers of conduit and conductors are limited by City Utilities transformer connections.							
NOTE: Refer to CU Construction Standards UP-TR1, UP-TR2, UP-TR3, and UP-TR4 for transformer pad and window dimensions.							

SECTION XIV
REWIRING OF EXISTING SERVICES

XIV.1 SERVICE REWIRES

- XIV.1.1 When a customer decides to increase the capacity of his existing electric service, or upgrades from 120 volts to 120/240 volts, it will be considered a service rewire. All rewires must result in a meter location on the outside of the structure at a location approved by City Utilities. This work requires a permit which is issued by the appropriate inspection authority.
- XIV.1.2 When a customer replaces a fuse box with a breaker box, moves a service from one location on a building to another location on the same building, or moves an electric meter from an inside to an outside location, the customer must contact the appropriate inspection authority to determine the type of permit required and the amount of work that must be completed.
- XIV.1.3 Inside the Springfield city limits, all service upgrades which consist of increasing the capacity of a main fuse or breaker box, meter base, and service entrance or service lateral conductor, must be performed by a licensed and bonded electrician.
- XIV.1.4 A residential homeowner, who resides at the address where the work will be performed, may obtain a "homeowners permit." The permit will be valid for branch circuit (inside wiring), or repair of general wiring in that residence. Prior to the customer doing any work, he must meet with the City Electric Inspector to obtain the permit and discuss the work being planned.
- XIV.1.5 On all rewire projects, the property owner or electrical contractor should meet with the Customer Engineering Department 831-8891, to determine an acceptable meter and service attachment height and location.
- XIV.1.6 After the rewire has been reconnected by City Utilities, removal of the old service equipment is the responsibility of the owner or contractor.
- XIV.1.7 All 120/240 volt delta-connected three phase rewire projects shall be converted to a combination 4 wire service. The electrician is responsible for maintaining proper phase rotation and proper use of the higher voltage (wild-leg) conductor. See SO-GN5 or SU-GN3 for special tagging requirements for this service.
- XIV.1.8 It shall be the sole responsibility of each prospective customer to obtain from City Utilities information as to the point at which City Utilities will provide service to the customer's premises, and thereafter to wire said premises in accordance with such information. City Utilities shall have no responsibility, duty or obligation to furnish service at any point other than that designated by the General Manager of City Utilities.

XIV.2 INSPECTION OF SERVICE REWIRES

- XIV.2.1 Rewired services must be inspected by the appropriate inspection authority before being reconnected by City Utilities.
- XIV.2.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.
- XIV.2.3 If, at the customer's request, City Utilities disconnects an electric service for a rewire project, we cannot reconnect the service without approval of the electric inspector.

XIV.3 SCHEDULING OF SERVICE REWIRE RECONNECTS

- XIV.3.1 Before City Utilities can connect a rewired electric service, we must have an inspection approval from the appropriate inspection authority.
- XIV.3.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
- XIV.3.3 City Utilities will, under normal circumstances, connect the service one to two working days after receiving the Inspectors' approval.
- XIV.3.4 Sometimes, the owner or contractor will need to be on-site to make final connections in his service equipment on rewire projects. When this is needed, call Electric Line Operations at 831-8473 to make an appointment.
- XIV.3.5 When a customer asks for a service reconnect to occur outside City Utilities normal working hours, the customer will be required to pay all additional overtime costs.
- XIV.3.6 While performing a rewire project, it may become necessary to remove or bypass the electric meter. This condition may be allowed in some circumstances, but only with prior approval from City Utilities Power Quality Department.

**SECTION XV
MULTIPLE SERVICE RESTRICTIONS**

XV.1 NUMBER OF SERVICES ON A BUILDING

- XV.1.1 This section is intended for use when a customer requests more than one electric service to be installed on a single building. On City Utilities' system, only one overhead service drop or underground service lateral or service location will be allowed on a building, except for exceptions as defined herein.
- XV.1.2 Services of different classifications, such as a single phase and three phase overhead service, served by a single drop, are considered as one service.

XV.2 APPLICATION FOR SERVICE

- XV.2.1 City Utilities usually becomes aware of service requests through the city or county plan review process or from a specific customer request. City Utilities reviews the plans for availability of electric service and general service configuration. City Utilities' preliminary plan review comments are given to the City of Springfield Department of Building Development Services, Greene County Building Regulation office or the specific customer making the request.
- XV.2.2 Prior to beginning site work on a project, the contractor or his representative should contact City Utilities Developer Services at 831-8888 to make a formal request for permanent and temporary electric service. The applicant should bring building permit information and correct address.
- XV.2.3 It shall be the sole responsibility of each prospective customer to obtain from City Utilities information as to the point at which City Utilities will provide service to the customer's premises, and thereafter to wire said premises in accordance with such information. City Utilities shall have no responsibility, duty or obligation to furnish service at any point other than that designated by the General Manager of City Utilities.

XV.3 DEFINITION OF A BUILDING, FIRE WALL AND FIRE SEPARATION WALL

- XV.3.1 A building is a structure that stands alone or that is cut off from adjoining structures by "fire walls" with openings therein protected by approved fire doors. See NEC Article 100.
- XV.3.2 The inspection authority having jurisdiction shall determine the definition of and acceptability of "fire walls" and "fire separation walls."
- XV.3.3 A "fire separation wall" does not meet requirements for a separate service location.

XV.4 GUIDELINES FOR MULTIPLE SERVICE LOCATIONS

- XV.4.1 To receive approval for multiple service locations on a single building, the following guidelines shall apply.
1. Meet requirements of the NEC, NESC, and all applicable local codes and standards.
 2. Request and be granted an allowable "exception" to the NEC or NESC.
 3. Meet requirements of city or county inspection authority having jurisdiction.
 4. Meet City Utilities' requirements.
 5. Maintain a 10 foot maximum distance between service locations.

6. Each service shall be visible from the other.
7. All services must be permanently tagged to indicate other service locations.

XV.5 APPROVAL OF REQUEST FOR MULTIPLE SERVICES ON A BUILDING

XV.5.1 If a customer has a project where more than one electric service on a building is being planned, they must receive pre-approval before beginning any work.

XV.5.1.1 The customer must submit the following information to the City Utilities engineer working the project, the City Utilities Power Quality Department, and the appropriate inspection authority.

- a. Written justification for requesting more than one service location on a single building.
- b. Type of service being requested:
 Overhead Underground
- c. Class of service(s) being requested:
 Commercial Residential
- d. Phase of Service being requested:
 Three phase Single phase
- e. Service voltage being requested:
 120/240 V 1 ϕ 240 V-3 ϕ
 120/208 V 1 ϕ 120/240 V 1 ϕ /3 ϕ
 Other 120/208 V 1 ϕ /3 ϕ
- f. A drawing showing:
 1. Location of service equipment on building
 2. Number and ampacity of main service-disconnects
 3. Number and size of parallel runs of service entrance conductors or service lateral conductors being run to each service
 4. For each separate meter:
 - a. Size of each individual service disconnect
 - b. Actual address for each meter
 - c. Single or three phase service
 - d. Number of terminals in meter base being used

XV.5.1.2 After receiving the above information, a meeting will be arranged with the parties to discuss and approve, approve with noted changes, or disapprove the service information.

**SECTION XVI
SECOND SERVICE REQUEST**

XVI.1 SECOND SERVICE REQUEST

- XVI.1.1 A second service request is when a customer who already has an existing electric service on their property requests an additional electric service on the same property.
- XVI.1.2 The typical request involves adding a new service to serve an unattached garage, barn, structure or other facility such as a well or sign that requires electric service.
- XVI.1.3 If line construction is needed to bring power to this second service (other than a service drop from existing facilities), the customer will be required to pay all costs for any new line construction.
- XVI.1.4 Actual location and configuration of the additional service will be determined jointly by the customer, the appropriate inspection authority and a City Utilities Engineer.

XVI.2 BUILDING REGULATIONS APPROVAL

- XVI.2.1 The first step in obtaining approval for a second electric service is to contact the appropriate inspection authority for that area.
- XVI.2.2 Each second service request is handled on a case-by-case basis.
- XVI.2.3 The city or county inspector will notify the customer and City Utilities whether the request is approved or not approved.

XVI.3 CITY UTILITIES APPROVAL AND COST

- XVI.3.1 Once the request is approved by the city or county inspector, the customer must contact City Utilities Developer Services at 831-8888.
- XVI.3.2 The service application is completed by Developer Services and routed to a City Utilities engineer.
- XVI.3.3 A City Utilities engineer will meet with you, discuss your request, and determine the cost to you for City Utilities to do the work.
- XVI.3.4 A letter will be sent detailing the cost. After receiving the payment, a construction job order will be issued to the Electric Line Operations Department.

XVI.4 PERMITS AND SERVICE CONSTRUCTION

- XVI.4.1 Prior to doing any work on a new electric service, permits must be obtained as detailed in this booklet.
- XVI.4.2 The customer must furnish and install all materials for the service. For additional service construction information see the appropriate sections of this booklet.

XVI.5 INSPECTION OF PERMANENT SERVICES

- XVI.5.1 All permanent services must be inspected by the appropriate inspection authority before they can be connected by City Utilities.
- XVI.5.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

XVI.6 SCHEDULING OF PERMANENT SERVICE CONNECTS

- XVI.6.1 Before City Utilities can connect an electric service, we must have a correctly addressed meter order for the service and an inspection approval from the appropriate inspection authority.
- XVI.6.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
- XVI.6.3 City Utilities will, under normal circumstances, connect a new service one to two working days after receiving the inspector's approval.

**SECTION XVII
MULTIPLE METER INSTALLATIONS**

XVII.1 MULTIPLE METER INSTALLATIONS

This section is intended to be used for commercial, strip centers, apartments, and other projects where more than two meters are needed from a single service location.

XVII.2 APPLICATION FOR SERVICE

XVII.2.1 City Utilities usually becomes aware of a multiple meter project through the city or county plan review process or through customer requests. City Utilities reviews the plans for availability of electric service and general service configuration. City Utilities preliminary plan review comments are given to the Springfield Department of Building Development Services, the Greene County Building Regulations office or the specific customer making the request.

XVII.2.2 Prior to beginning site work on a project, the contractor or his representative should contact City Utilities Developer Services at 831-8888 to make a formal request for permanent and temporary electric service. The applicant should bring building permit and correct address information for City Utilities use.

XVII.3 PRE-APPROVAL OF SERVICE EQUIPMENT

XVII.3.1 The final service equipment configuration must be pre-approved prior to ordering any service equipment for the project.

The customer must submit the following information to the City Utilities engineer working the project, the City Utilities Power Quality Department, and city or county electric inspector:

- 1) Type of service being requested:
 Overhead Underground
- 2) Class of service(s) being requested:
 Commercial Residential
- 3) Phase or Service being requested:
 Three phase Single phase
- 4) Service voltage being requested:
 120/240 V 1 ϕ 240 V-3 ϕ
 120/208 V 1 ϕ 120/240 V 1 ϕ /3 ϕ
 Other 120/208 V 1 ϕ /3 ϕ
- 5) A drawing showing:
 - a. Location of service equipment on building
 - b. Ampacity of main service-disconnects
 - c. Number and size of parallel runs of service entrance conductors or service lateral conductors.
 - d. Size of each individual service disconnect
 - e. Actual Address for each meter
 - f. Single or three phase service
 - g. Number of terminals in meter base being used

After receiving the preceding information, a meeting will be set up with the parties to discuss and approve, approve with noted changes, or not approve the service information.

- XVII.3.2 After the service information has been reviewed and approved, a copy of this information will be given to City Utilities Developer Services office. They will generate a work order for each meter and forward it to the Electric Line Operations Department or Power Quality Department.

XVII.4 METER BASE TAGGING

- XVII.4.1 Prior to calling for an inspection, each meter base or main disconnect device shall be tagged to indicate the specific address, unit or apartment number that the meter serves.
- XVII.4.2 Metal or hard plastic address tags may be used and must be permanently attached to the meter base or main disconnect device. See section VIII.7.1 for the requirements on marking multiple meter bases.
- XVII.4.3 The address may also be stamped into the meter base or main disconnect device cover.

XVII.5 INSPECTION OF SERVICES

- XVII.5.1 All permanent services must be inspected by the appropriate inspection authority before they can be connected by City Utilities.
- XVII.5.2 It is the customer's responsibility to notify the inspector when the service work is complete and ready for inspection.

XVII.6 SCHEDULING OF SERVICE CONNECTS

- XVII.6.1 Before City Utilities can connect an electric service, we must have a correctly addressed work order for the service and an inspection approval from the appropriate inspection authority for each new meter being connected.
- XVII.6.2 The inspector will, under normal circumstances, notify City Utilities of a service approval one to two working days after the inspection.
- XVII.6.3 City Utilities will, under normal circumstances, connect your new service one to two working days after receiving the inspector's approval.
- XVII.6.4 A City Utilities service crew will connect the service and energize it to the main service disconnect.
- XVII.6.5 To help ensure proper meter tagging, the electrician must contact City Utilities Power Quality Department at 831-8576 to coordinate the setting of electric meters and to check each meter to be sure it feeds the proper address.

SECTION XVIII
MULTIPLE DWELLING UNITS

XVIII.1 MULTIPLE DWELLING UNITS

This section is intended to clarify when meters for multiple dwelling units such as condominiums, duplexes, patio homes, townhouses, tri-plexes or four-plexes may be placed on each individual unit, or when the meters must all be placed at a common location.

XVIII.2 UNITS SEPARATED BY FIRE WALLS

When units are separated by a "fire wall" as determined by the appropriate inspection authority, an electric meter may be placed on each individual unit.

XVIII.3 UNITS NOT SEPARATED BY FIRE WALLS

XVIII.3.1 When units are separated by common building walls, fire separation walls, or other construction not meeting "fire wall" requirements as determined by the appropriate inspection authority, electric meters for all units must be grouped at a common location.

XVIII.3.2 A fire separation wall does not meet requirements as a "fire wall."

SECTION XIX
MOBILE HOME PARKS

XIX.1 MOBILE HOME PARK MASTER METER CONVERSION

XIX.1.1 In the event that an existing mobile home park, which is master metered, wishes City Utilities to take over the electric system and individually meter each mobile home, the following procedure applies.

XIX.1.1.1 Mobile home park owner contacts the Electric T & D Engineering Department at 831-8566 concerning the request.

XIX.1.1.2 The Electric T & D Engineering Department determines the value of the mobile home park primary and secondary electric facilities in their current condition. This does not include service equipment. Electric T & D Engineering also determines any associated cost of reconfiguring the electric system to meet City Utilities and NESC standards. Electric T & D Engineering determines a fair value for City Utilities to pay for the electric facilities. The fair value of the facilities shall never be less than zero. The fair value determination shall also include the cost to City Utilities to dispose of PCB and PCB contaminated transformers in the park's electric system.

XIX.1.1.3 Electric T & D Engineering informs the mobile home park owner of the fair value of the facilities and the tree trimming required. All tree trimming required by City Utilities shall be performed at the mobile home park owner's expense prior to the execution of a sale agreement.

XIX.1.1.4 If the mobile home park owner agrees that the value of the facilities as determined by Electric T & D Engineering is fair, then City Utilities will prepare the necessary documents for the sale of the facilities including permanent easements for all electric facilities to be transferred. The width, length, and locations of the easements will be determined by Electric T&D Engineering.

XIX.1.1.5 After the mobile home park owner has approved and signed the sale documents and easements, the appropriate ones will be signed by City Utilities General Manager and will be submitted to the Board of Public Utilities for approval. If the Board approves the agreement, the easements will be recorded and the sale and transfer of facilities shall be complete. If the Board rejects the sale of the facilities, then the transaction shall be null, void, and of no force or effect. The easements will be returned to the mobile home park owner.

Note: Electric T & D Engineering has no authority to enter into any contract without approval from the Board of Public Utilities.

SECTION XX
ROADWAY AND SECURITY LIGHTING

XX.1 WHITEWAY LIGHTING

- XX.1.1 City Utilities installs and maintains lights on roadways within its service area in accordance with the City of Springfield Charter.
- XX.1.2 The priority of the location of new continuous whiteway lighting is determined by a 10-year plan which is prepared by City Utilities, the City of Springfield, Missouri Department of Transportation and the Greene County Highway Department. All requests or comments concerning the planning of whiteway lighting systems should be made to City Utilities Electric T & D Engineering at 831-8566.

XX.2 RESIDENTIAL STREET LIGHTING

- XX.2.1 When a residential street light is requested, the Customer Engineering Department will determine if a light is needed, location and type of light, and which properties will be affected. A petition form will be sent to the requesting party. It is the responsibility of the requesting party to get the affected property owners to sign the petition for the light. This petition must be signed by a majority of the affected property owners in favor of the light before it will be installed. An easement may be required for the installation of the street light power source. If this easement is not granted, the light cannot be installed.
- XX.2.2 Once a petition is approved, the City Utilities Customer Engineering Department will send an order to the Electric Line Operations Department requesting installation of the light. The Electric Line Operations Department will install the light on a first come-first serve basis.

XX.3 SECURITY LIGHTING

- XX.3.1 City Utilities will, under certain conditions, install lighting fixtures for the purpose of customer security lighting. These lights cannot be installed over city or county roads.
- XX.3.2 Requests for security lights should be submitted to the City Utilities Developer Services Department at 831-8888. Each request will be handled on an individual basis. There must first be sufficient room on an approved pole to afford proper clearances according to the NESC before the light will be installed.

If a light can be installed, the customer will be given a fixed connect charge for the installation. If make ready or preparatory work is required on a pole(s) before a light can be attached to the pole, the customer will be responsible for the make ready or preparatory cost in addition to the connect charge. If a group of individuals request a light, they must name one person responsible for the billing.

Once a light is installed, any problems arising with adjacent property owners must be resolved by the requesting party. The customer will be required to sign a contract requesting installation of the light and agreeing to pay the fixed installation cost and the monthly charge as stipulated in the current City Utilities rate structure.

- XX.3.3 The estimated installation cost of the light must be paid in advance of installation. City Utilities will determine the mounting height of the light, location and acceptability of the pole, type of light and fixture, and the bracket length. The requesting party will determine the wattage of the light.
- XX.3.4 It will be the responsibility of the customer to report any light outages. City Utilities will perform all maintenance on the light and fixture.
- XX.3.5 If a customer requests a light to be removed, they should contact City Utilities Developer Services who will issue a work order to Electric Line Operations Department to remove the security light.
- XX.3.6 If the customer should stop paying the monthly bill, City Utilities Customer Service section will notify the customer of the nonpayment. If the account remains unpaid or is not transferred to a new customer within 30 days of notification, the light will be removed or disconnected by City Utilities.

XX.4 OUTDOOR LIGHTING POLICY

- XX.4.1 Additional information regarding outdoor lighting in new subdivisions and developments is available in the City Utilities Outdoor Lighting Policy. Contact City Utilities Developer Services Department at 831-8888 for outdoor lighting assistance.