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*Fort Collins Utilities Electric Construction Policies, Practices and Procedures*

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***City of Fort Collins Utilities***  
***Electric Construction Policies, Practices and Procedures***

**1. Authority for Regulations**

This policy, and the regulations it implements, are authorized by Section 26- 463 of the Code of the City of Fort Collins, and shall be available for public review at the Fort Collins Utility Service Center and the Office of the City Clerk of the City of Fort Collins.

**2. Application of Policy**

This policy applies to all construction, new development, redevelopment or remodeling.

**3. Underground Construction Required**

All electric utility lines and line extensions shall be underground in accordance with the requirements of the "Electric Service Rules and Regulations."

**4. Costs**

**4.1. New Development and Redevelopment**

Cost estimates from preliminary plats will be furnished on request to developers for planning purposes (based on average electric costs developed by the Fort Collins Utilities (hereinafter called the Utilities) from previously completed projects). Developers will receive a firm price for the underground electric system for a subdivision, mobile home park or project development plan after providing the Utilities with:

1. one copy of the final approved subdivision plat, and
2. the number, size and location of points-of-service at which electric service is requested.

When the developer requests the actual construction of the project be started, a payment of fifty percent of the quoted firm price will be required. This partial payment need only be paid on the portion of the underground electric system which is to be constructed and not necessarily on the whole subdivision project, provided that such portion is suitable for partial electric service. Quoted firm prices will include off-site facilities, primaries and streetlights. The owner will be charged for electric services not paid for by the developer.

The underground electrical system will be installed in two phases:

1. Phase one includes the installation of the primary conduit, transformer vaults, primary conductor and customer service provisions from the transformer vault to the nearest lot corner or on-site transformer. Upon completion of this phase of the project, the final payment of the quoted firm price becomes due and payable. The electrical system will be energized following receipt of payment of all project fees and charges.
2. Phase two includes the installation of the customer's service to the lot corner or on-site transformer or meter socket. Service will be installed upon mutual agreement, as to point of-service and meter location. A separate charge will be made for the service prior to installation.

Modifications to the development plans requiring field changes in the electric system and unforeseen construction obstacles such as frost and rocky soil conditions will be charged on a change order basis and will be coordinated with the developer prior to proceeding with the work.

#### **4.2. Modifications to Capacity**

For remodeling or other modifications where the customer's electric panel capacity is increased and where development charges have not previously been paid, development charges (off-site facilities, primary and streetlights) are applicable to the increased capacity on a prorated basis. All charges for on-site costs are applicable per the Line Extension Policy of the "Electric Service Rules and Regulations".

### **5. Residential Construction**

This policy applies to new subdivided areas where curb (except for radius sections) and grading have been completed but where gas and telephone utilities and paving have not been installed. (See Construction Sequence.)

Residential construction is defined as a single phase primary system complete with transformer vaults and transformers designed to convert the primary system voltage to the standard residential voltage of 120/240 volts, three wire single-phase, including the three wire electric service to the meter location. The electric facilities will generally be installed underground behind the curb or sidewalk with a minimum cover of 30 inches, and will generally be completely at or below grade utilizing front lot line construction. Streetlighting will be installed in accordance with the City of Fort Collins design criteria and standards for streets.

#### **5.1. Meter Sockets**

- 5.1.1. Meter sockets shall be UL-approved, 4-terminal sockets and shall be furnished and installed by the owner or his agent as a contribution in aid to construction on a non-refundable basis.
- 5.1.2. Meter sockets shall be rated for a minimum of 100 amps.
- 5.1.3. The Utilities reserves the right not to energize an under-rated or unapproved meter socket.
- 5.1.4. Damaged meter sockets shall be replaced and installed by the owner or his agent at no expense to the Utilities.
- 5.1.5. For installations exceeding 200 amps, applicable meter socket rules covered in the Commercial section shall apply.

#### **5.2. Single Occupancy (single residence)**

- 5.2.1. Before electric service is installed, the meter socket (furnished by the owner) shall be installed and the meter socket installation must be approved by the Building Inspection Department.
- 5.2.2. A rigid non-metallic conduit with a 24-inch 90-degree bend elbow attached from the socket to a point 36 inches below finished grade, must be provided. The conduit size shall be as specified by the Utilities and shall not be less than 2 inches inside diameter.
- 5.2.3. The Utilities will furnish and install the service conductors to the meter socket.
- 5.2.4. The meter must be located for easy reading and access by the Utilities on a side wall of the residence as close to the street side of the residence as possible and shall not be in an enclosed or fenced area of the yard.

- 5.2.5. The Utilities will install, own and maintain all underground service wires, buses and electrical devices up to and including provisions for connection of the customer's service wires; such connection provision will be generally located within the confine of the meter socket enclosure.
- 5.2.6. All construction and maintenance on the customer side of any provision for customer service wire connection including the making of such service connections shall be done by someone other than the Utilities.
- 5.2.7. The secondary electric service is to be paid at the time the building permit is issued.

### **5.3. Multiple Occupancy (apartments)**

- 5.3.1. Where service is provided to individual customers located in a structure designed for multiple occupancy, meters shall be grouped for service from a single circuit secondary service.
- 5.3.2. The location of the meters shall allow access, at all times, by Utilities' personnel for the purposes of reading meters and maintaining Utilities owned equipment.
- 5.3.3. The location shall be on the exterior for multiple occupancy, unless otherwise approved by the Utilities.
- 5.3.4. Each meter socket shall be plainly and permanently marked to indicate which apartment or unit it supplies. The marking shall be the same as the mailing address for each unit. The owner or developer shall be responsible for electricity delivered through unmarked, illegible or incorrectly labeled meter sockets.
- 5.3.5. All expenses incurred by the Utilities related to correcting improperly labeled meters will be billed to the developer or owner whose responsibility it shall be to pay such expenses within 30 days of receipt of said billing.
- 5.3.6. The owner shall furnish and install UL approved meter sockets and rigid (non-metallic) service entrance conduit with 24 inch radius and 90 degree bend elbow to a point 36 inches below finished grade. The service conduit shall be not less than 2-1/2 inches inside diameter or as specified by the Utilities.
- 5.3.7. The owner shall also provide a one-inch conduit from the transformer to an accessible point inside the building near the meter installation for future use by the Utilities.
- 5.3.8. At the option of the Utilities, the owner may be required to furnish and install specified service conductors to the transformer terminals.
- 5.3.9. Service conductor size and insulation shall be as approved or specified by the Utilities.
- 5.3.10. Trenches for secondary services to apartment complexes that are 8-plexes and larger shall be inspected by Building Inspection.

## **6. Mobile Home Parks**

### **6.1. Ganged Meter Sockets**

- 6.1.1. Electric facilities will generally be installed on rear lot lines (unless otherwise approved by the Utilities) to ganged meter sockets with breakers, and will be installed and billed with the first phase of construction.
- 6.1.2. The location of the meter shall allow access, at all times, by Utilities personnel for the purposes of reading meters and maintaining Utilities-owned equipment.
- 6.1.3. Meter sockets with breakers shall be furnished, installed and maintained by the owners. Meter sockets and breakers shall be Utilities-approved devices.
- 6.1.4. Meter sockets shall be rated for a minimum of 100 amps. A 2-inch rigid non-metallic utility service conduit (or conduits as required) from the meter sockets with a minimum cover of 42 inches ( $\pm$  6 inches) from finished grade, using a 24 inch radius

90-degree bend is to be installed by the owner and approved by the building inspector.

- 6.1.5. If the meter sockets are not building mounted, the 2-inch conduits shall be rigid steel and shall be supported in concrete.
- 6.1.6. The mounting height from the bottom of the meter to ultimate final grade should be 36 inches.
- 6.1.7. Each meter position shall be plainly and permanently marked to indicate which unit it supplies. The marking is to be the same as the mailing address for each unit. The owner or developer will be responsible for electricity delivered through unmarked or incorrectly labeled meter sockets.
- 6.1.8. Expenses incurred by the Utilities related to correcting improperly labeled meters will be billed to the developer or owner, whose responsibility it shall be to pay such expenses within 30 days of receipt of said billing.
- 6.1.9. All wiring from the customer side of the meter is to be installed, owned and maintained by the owner. The point of delivery shall be the load side terminals of the meter socket.
- 6.1.10. The Utilities will install, own, operate and maintain circuits and equipment up to the point of delivery.
- 6.1.11. The Utilities shall have Utilities -sealed access to the meter socket.
- 6.1.12. The customer shall own, maintain and operate all breakers, receptacles and other devices on the customer side of the point of delivery.

## **6.2. Single Position Pedestals**

Single position mobile home utility meter pedestals may be used with the same "Electric Construction Policies, Practices and Procedures" as applies to ganged meter sockets.

## **7. Project Development Plan**

The applicable service rules as described under the residential construction, mobile home parks, and commercial headings apply.

## **8. Commercial Construction/Development**

### **8.1. General**

- 8.1.1. Commercial development will be considered on an individual basis depending upon size, type and characteristics of the load requirement.
- 8.1.2. The Utilities will endeavor to provide special service voltages and/or connections when a Utilities-approved document is presented, provided that such document or documents accurately and completely describe the owner's load and desired entrance needs.
- 8.1.3. Service requirements, construction costs and payment terms will be provided on request. Early contact with the Utilities during the planning stages is essential. The Utilities will not be obligated to provide special service voltages or if planning has not been coordinated with the Utilities.
- 8.1.4. Entrance requirements including location, number of phases, voltage, amperage per meter, number of meters, and underground or overhead must be determined with the Utilities at an early date.
- 8.1.5. Typically, the Utilities will provide these services:
  - ✓ 3 wire 120/240 volt single phase,
  - ✓ 3 wire 208Y/120 volt single phase,

- ✓ 3 phase 208Y/120 4 wire service, or
- ✓ 3 phase 480Y/277 volt 4 wire service.

Other service voltages or types must be approved by the Utilities.

- 8.1.6. Because of planned underground service facilities and requirements to convert overhead lines to underground, the location or characteristics of existing or prior electric service facilities will not determine the location or service characteristics of a new or modified electric service entrance.
- 8.1.7. Except when the Utilities determines that underground is not feasible, services will be installed underground.
- 8.1.8. The owner will be required to furnish, install and maintain all circuits and equipment on the customer side of the point of delivery.
- 8.1.9. Streetlighting will be installed in accordance with the City of Fort Collins' design criteria and standards for streets.

## **8.2. Meter Sockets**

- 8.2.1. For loads not exceeding 200 amps or 300 volts applicable meter socket rules in the Residential Construction section apply. Contact the Utilities for 320-amp single-phase socket approval on a case-by-case basis.
- 8.2.2. For loads exceeding 200 amps or 300 volts but less than 600 volts, meter sockets will be furnished by the Utilities and installed by the owner or his agent. Metering will be instrument transformer rated, with instrument transformers furnished by the Utilities. The owner or his agent shall furnish and install a one-inch conduit from the meter socket to the instrument transformer location.
- 8.2.3. Instrument transformers and associated equipment such as enclosures, racks, poles, cable, terminations, insulators, etc., for primary metering shall be at the expense of the customer on a non-refundable basis. The owner or his agent shall install the meter socket (furnished by the Utilities), and shall furnish and install a one-inch conduit from the meter socket to the instrument transformer location. The owner shall furnish a one-inch conduit from the meter socket to the phone room and a one-inch conduit from the secondary side of the transformer to an accessible point inside the building near the meter installation for future use by the Utilities.
- 8.2.4. The location of the meters shall allow access, at all times, by Utilities personnel for the purposes of reading meters and maintaining Utilities-owned equipment. The location shall be on the exterior unless otherwise approved by the Utilities.
- 8.2.5. Each meter socket shall be plainly and permanently marked to indicate which unit it supplies. The marking is to be the same as the mailing address for each unit. The owner or developer will be responsible for electricity delivered through unmarked, illegible or incorrectly labeled meter sockets. All expenses incurred by the Utilities related to correcting improperly labeled meters will be billed to the developer or owner, whose responsibility it shall be to pay such expenses within 30 days of receipt of said billing.

## **9. Construction Coordination Sequence**

### **9.1. General**

- 9.1.1. Construction coordination and scheduling is the responsibility of the developer and owner/builder. To ensure maximum economy in construction, the sequence of installation of utilities, streets, driveways, sidewalks, etc., must be coordinated with the Utilities.

- 9.1.2. Increased construction costs incurred by the Utilities due to the lack of economic scheduling or construction coordination will be charged to the developer or owner/builder.
- 9.1.3. In general, underground utilities should be installed from deepest to shallowest, i.e. the deepest utility should be installed first, the second deepest second, etc.
- 9.1.4. The underground utility installation sequence diagram included herein illustrates the typical construction plan and profile, along with typical developer and owner/builder sequence steps. This diagram is provided as a guide to assist the developer and the owner/builder. Actual construction sequences must be coordinated with the Utilities on a project by project basis.
- 9.1.5. Changes or additions to the electric system due to development deviations will be made at the expense of the developer or owner. A development deviation is any variation from the prescribed sequence of development that increases the cost of construction for the Utilities.

## **9.2. Prerequisite to Construction**

- 9.2.1. The developer shall grant easements for the installation of the Utilities' facilities.
- 9.2.2. All lot corners pertaining to the underground system must be staked and all final grading on the service lines and easements completed before work will be started. Curb (except for radius sections), gutter and final grade, adjacent to and 15 feet from the property side of the curb, must be completed prior to the installation of the electric facilities.
- 9.2.3. Concrete curb and sidewalks must be cured a minimum of 7 days to prevent damage thereto.

## **9.3. Street Crossing Option**

- 9.3.1. Upon the approval of the Utilities, a developer may install conduits at street crossings. This option expedites the development process when street paving is scheduled before the underground electrical system can be installed.
- 9.3.2. The Utilities will specify the locations of such crossings and provide all materials to the developer.
- 9.3.3. All crossings must be inspected and approved by the Utilities. A credit will be issued to the developer in the amount of the net savings realized by the Utilities due to the developer's installation of the conduits.
- 9.3.4. The developer/owner/agent is responsible for the cost and repair or replacement of damaged or unusable conduit in street crossings provided for installation of electric and joint use facilities.

## **9.4. Trenching Option**

- 9.4.1. At the discretion of the Utilities, the developer or owner may be required to furnish all necessary trenches, excavations and backfills to meet the requirements established by the Utilities for the underground electric system. A credit will be given based on trenching costs to the Utilities in average soils.
- 9.4.2. All trenches dug by the developer or owner will be inspected and approved by the Utilities prior to the installation of conduits and conductors. The Utilities will, in these cases, approve the backfill material and installation. If the excavated material contains rock, the developer will be required to supply proper backfilling material.
- 9.4.3. It is the developer or owner's responsibility to coordinate all work, including the inspection of trenches and backfill. The Utilities reserves the right to test compaction or depth at the cost of the developer or owner.

## **9.5. Joint Use Construction**

- 9.5.1. In cases where the electric trench is to be used for the installation of communications or other utility facilities, plans shall be made with the Utilities for inclusion in the final electrical design prior to the developer's request for scheduling and a minimum of two weeks prior to the date that electric construction is to begin.
- 9.5.2. The initial planning, coordination and implementation of a joint use agreement with the Utilities shall be the responsibility of the developer, owner and or third party utility desiring joint use trench.
- 9.5.3. The Utilities will not offer joint use to those who have not completed the coordination of their planning with the joint use parties.
- 9.5.4. Joint use costs will be charged to the owner/developer or third party utility to recover engineering service, construction, installation of facilities, maintenance and administrative costs.

## **10. Relocation of Facilities from Vacated Easement**

In the case where an easement has been granted and electric distribution facilities have been installed, the parties seeking to have such easement changed shall pay the Utilities the actual cost for relocation of the Utilities' electric distribution facilities and shall provide the necessary alternative rights-of-way.

## **11. Temporary Lines**

- 11.1. Any temporary electric service lines required by the developer for construction purposes before the underground system is completed shall be at the expense of the developer.
- 11.2. At the option of the Utilities, the developer will be billed for the actual or estimated cost of construction, plus estimated retirement costs. There will be no charge for recoverable materials.

## **12. Working Adjacent To Overhead Lines**

- 12.1. Any person, customer, business, or other party working within ten (10) feet of overhead power lines carrying more than 600 volts shall provide 72 hours notice to the Utilities of such work.
- 12.2. The Utilities shall coordinate the efforts to cover up or in some manner to make such lines safe for the work or activity.
- 12.3. The customer, person, business or party shall pay all costs associated with making such lines safe.
- 12.4. Failure to notify the Utilities 72 hours in advance of any activity within 10 feet of overhead lines, shall relieve the Utilities of all responsibility or liability for accidents, injuries or damages arising through or from such activities.

## **13. Locate Policy**

- 13.1. To prevent service interruptions, personal injury and property destruction resulting from damage to underground facilities during excavation, Colorado state law requires notification of utilities at least two business days prior to any excavation. Notification will be made through the Utilities' notification agent.
- 13.2. Upon receiving such notice, the Utilities shall advise the excavator of the location and size of underground facilities in the proposed excavation area.

- 13.3. The Utilities will designate the location of the facilities with clearly identifiable markings within eighteen (18) inches, laterally, from the exterior sides of the facilities.
- 13.4. The excavator will undertake the excavation within 30 days of receiving the facility location. (If the markings are no longer clearly visible within that 30 days, another locate must be requested.) If an excavator discovers that the Utilities has incorrectly marked the location of the underground facilities, the Utilities must be informed immediately and excavation must be stopped. Utilities' personnel will repair any damage and correct the faulty markings.
- 13.5. The Utilities will be relieved of all responsibility and liability for the accuracy of the locations if the excavator fails to undertake excavation within 30 days. Within that 30 days, the Utilities will be further relieved of all responsibility and liability for the accuracy of the locations if the markings are no longer clearly visible.
- 13.6. In the event of actual or potential damage to an underground utility facility, the excavator shall stop excavation and immediately notify the Utilities of the location and extent of such damage. The excavator will be responsible for the cost of repairing facilities, including mobilization of Utilities crews, damaged under any of the following conditions:
  1. Correctly located underground facilities,
  2. Damage to facilities in areas where locations were not requested,
  3. Damage to facilities that were located in excess of 30 days prior to excavation,
  4. Damage to facilities where the location markings were no longer visible,
  5. Continued damage to the Utilities' system resulting after the first exposure of incorrectly located facilities.
- 13.7. All excavation shall be in conformance with applicable local, state and federal laws and as described above.

#### **14. Contractor Access To Energized Transformer Compartments**

- 14.1. The Utilities will provide access to energized transformer compartments at the request of a licensed electrical contractor or electrician. No such access will be allowed until the Utilities and contractor/electrician have executed an agreement specifying the responsibilities of each party.
- 14.2. The contractor/electrician must take every reasonable measure to ensure that public health, safety and welfare is protected while access to the transformer has been granted.

#### **15. Other Rules and Regulations**

Where other published rules of the Utilities do not conflict with the above, they are applicable. These policies are intended to supplement and not alter the Electric Service Rules and Regulations. If a conflict does occur the Electric Service Rules and Regulations apply.

## Glossary

**Building Site Charges** - Charges for installing electric service lines from the street to the residential meter or commercial transformer. Off site facilities (kVa load) charge, primary service charge, and secondary service charge are collectively referred to as "building site charges."

**Development Charges** - Charges for providing primary electric service to the lot corner of the site, including the cost of streetlight construction. Off site facilities, primary charge and streetlight charge are collectively referred to as "development charges."

**Excavation** - Any operation in which earth is moved or removed by means of any tools, equipment or explosives and includes, but is not limited to, auguring, backfilling, ditching, drilling, grading, plowing-in, pulling-in, ripping, scraping, trenching and tunneling.

**Off Site Facilities** - Delivers electric power from main substations to subdivisions and load areas.

**Off Site Facilities Charge** - Cost to bring primary electric power from main substations to subdivisions and load areas.

**Point of Delivery** - That point defined as the load side of the electric meter or the load side of the main disconnect where current transformers (CTs) are employed or as otherwise designated by the Utilities beyond which the customer is responsible for installation and maintenance of electrical equipment.

**Point of Service** - That point at which the Utilities' service lines, primary or secondary, enter the property of the customer, or as otherwise designated by the Utilities.

**Primary Charge** - Cost to bring primary electric power at primary voltage from the subdivision boundary to the internal loads in the subdivision.

**Primary Electric Service** - All cable, enclosures, switches and associated apparatus necessary to provide primary service to the transformers or primary bus from the primary feeder.

**Primary Feeder** - Delivers electric power at primary voltage to the subdivision or individual load from the off site facilities.

**Primary Service Charge** - Cost to bring primary voltage electric cable to pad mounted transformers or building vaults on customer's premises.

**Redevelopment** - New construction on a site on which development charges have not previously been paid, or as determined by the Utilities.

**Secondary Electric Service** - Electric distribution service cables of 600 volts and below from the transformer to the customer's metering point.

**Secondary Service Charge** - Cost to bring electric distribution service cables of 600 volts and below from the transformer to the customer's metering point.

**Streetlight Charge** - The charge for the installation of new streetlights. Streetlights are installed in accordance with the City of Fort Collins' Design Criteria and Standards for Streets.

**UL** - Underwriters' Laboratories, Inc.

**Utilities** - The City of Fort Collins Utilities (the Utilities).

## **Underground Utility Installation Sequence**