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INTRODUCTION

The Utilities Commission, City of New Smyrna Beach, Florida, makes every effort to provide high quality, reliable electric service to all customers. Providing such service requires that rational rules and guidelines be established fairly administered and clearly understood by all concerned. This publication has been prepared with this in mind and should be helpful to customers, architects, engineers, electrical contractors and local inspection authorities relative to the installation of new electric facilities and the upgrade of existing facilities.

The following policies and rules were the Utilities Commission requirements at the date of publication. This manual is revised periodically and is subject to change due to ongoing changes in engineering and construction practices. Utilities Commission Engineering Department personnel should be contacted for the latest requirements in effect. The Utilities Commission Engineering Department maintains overhead and underground standards available upon request.

In any case not specifically covered, or if questions arise as to the application of these Rules and Standards, contact the Engineering Department prior to design and construction.

The requirements in this booklet supplement and complement those of the American Standards Association, the current National Electric Safety Code and the current National Electric Code and the endorsements thereof by the National Fire Protection Association and the applicable codes of State, County and Municipal authorities which are incorporated herein by reference.

Such codes, for the most part, set forth only those requirements consistent with safety. The National Electric Code states, "Compliance therewith and proper maintenance will result in an installation essentially free from hazard, BUT NOT NECESSARILY EFFICIENT, CONVENIENT OR ADEQUATE FOR GOOD SERVICE or future expansion of electrical use." Therefore, it is recommended that the Customer consider the installation of facilities exceeding the minimum requirements in order to protect building investment and improve the potential for energy conservation.

For connection or reconnection of service, both the Authority Having Jurisdiction and the Commission have the right to determine compliance for service.
DEFINITIONS

**AMPERE** - The unit of flow rate of electric current.

**COMMISSION** - Utilities Commission, City of New Smyrna Beach, Florida

**CODE OR NEC** - National Electric Code

**CONNECTED LOAD** - Sum of the ratings of the electric power-consuming apparatus comprising the system under consideration.

**CONTRIBUTION-IN-AID-OF-CONSTRUCTION (CIAC)** - The added cost paid by a Customer or developer to have the Commission install service facilities that are not standard and/or costing more than that normally recovered through the monthly energy and Demand charges.

**CUSTOMER** - Any present or prospective user of Utilities Commission's electric service (or his authorized representative, architect, engineer, electrical contractor, etc.). When electric service is provided at more than one location, each such location or point of delivery shall be considered as a separate Customer.

**DEMAND** - The electric load at the terminals of an installation or system averaged over a specified period of time. Demand is usually expressed in kilowatts.

**ENERGY** - Units of electric power consumed, expressed in kilowatt-hours (an average one-kilowatt demand imposed for one hour).

**H.P. OR HORSEPOWER** - The nameplate rating of motors and/or other apparatus. One horsepower is considered as equivalent to 746 watts.

**INSPECTOR OR INSPECTION AUTHORITY** - A person or agency authorized by a governmental body to inspect and approve electrical installations.

**kVA OR KILOVOLT-AMPERES** - The product of voltage and current.

**kW OR KILOWATT** - One thousand (1,000) watts.

**kWh OR KILOWATT-HOUR** - The product of kilowatts and the period in hours.
LOAD – (1) The Customer’s equipment requiring electrical power. (2) The quantity of electrical power required by the Customer’s equipment, usually expressed in kilowatts or horsepower.

LOAD FACTOR - The kilowatt-hours used for a given period of time, divided by the product of the maximum kilowatt demand established during the period, multiplied by the number of hours in the period.

\[
\text{kWh Consumed} = \frac{\text{Max. kW} \times \text{Hours}}{\text{kW consumed}}
\]

LOAD MANAGEMENT - An energy conservation program administered by the Utilities Commission.

NATIONAL ELECTRIC CODE (N.E.C.) - A code sponsored by the National Fire Protection Association under the auspices of the American National Standards Institute for the purpose of safeguarding persons and property from hazards arising from the use of electricity.

NATIONAL ELECTRICAL SAFETY CODE (N.E.S.C.) - A code sponsored by the Institute of Electrical and Electronics Engineers, Inc., under the auspices of the American National Standards Institute for the purpose of the practical safeguarding of persons during the installation, operation and maintenance of electric supply and communication lines and associated equipment.

PHOTOVOLTAIC SYSTEMS - Roof top panels generating electricity fueled by sunlight.

POINT OF DELIVERY - The point as designated by the Commission where the Utilities Commission’s overhead Service Drop, underground Service Lateral or transformer secondary bushings connect to the Customer's Service Entrance conductors.

POWER FACTOR (P.F.) - Ratio of kilowatts to kilovolt-amperes.

PRIMARY SERVICE - Service supplied to the Customer's equipment at the Utilities Commission's distribution voltages of 13.2 kV and 22.9 kV (line to line) or at the Utilities Commission's transmission voltages of 115 kV or above, where the Customer installs, owns and maintains his entire transformation and utilization system.

SERVICE - The supply of the Utilities Commission's product, "electric energy," to the Customer. The wire connections between the Utilities Commission's lines and the Customer's wiring is a service connection and is sometimes called "a service."

SECONDARY SERVICES - Service supplied to the Customer's equipment at voltages less than 600 volts.
SERVICE CLASSIFICATIONS - (1) RESIDENTIAL SERVICE: Service to Customers in private residences and individually metered apartments when all energy is used for domestic purposes. (2) GENERAL SERVICE: Service to Customers engaged in selling, warehousing or distributing a commodity, in a service activity or profession, or in some form of economically-gainful or social activity (offices, stores, clubs, hotels, schools, etc.).

SERVICE DROP - The overhead service conductors between a Utilities Commission's pole and the point of attachment to the Customer's property.

SERVICE ENTRANCE - Wire or enclosures connecting the Customer's service equipment to the Utilities Commission's service drop or other Utilities Commission's source of supply.

SERVICE EQUIPMENT - The necessary equipment, usually consisting of circuit breaker or switch and fuses and their accessories, located near the point of entrance of supply conductors to a building, and intended to constitute the main control and means of cutoff for the supply to that building.

SERVICE LOCATION - The point in or on a premise where the Utilities Commission's overhead service drop or underground service lateral connects to the Customer's service entrance conductors. The location is designated by the Utilities Commission.

UMD - Underground Mobile Home Development.

UNDERGROUND SERVICE LATERAL - The entire length of underground service conductors between the distribution source, including any risers at a pole or other structure or from transformers, from which only one point of service will result, and the first point of connection to the service entrance conductors in a terminal or meter box outside the building wall.

URD - Underground Residential Development.

VOLT OR VOLTAGE - Unit of Electrical Potential.

WATT - The product of voltage times current times power factor - a unit of demand.
SECTION 1 – GENERAL INFORMATION

1.01 CUSTOMER ACCOUNTS

A. Application for Electric Service

Customers requesting electric service from the Utilities Commission will be asked to complete an Application for New Service with the assistance of a Utilities Commission representative. The application may be made in person or by the customer's authorized agent. Information to be supplied by the customer includes personal identification, name to which bills are to be rendered, street name and house number, zip code, and if in rural territory, other information to assist in locating the customer's premises. The application should be made as far as possible in advance of the time electric service is desired. The application will be finalized by a Utilities Commission representative when these and all other applicable Rules and Standards, codes and inspections have been complied with. In addition, a monetary deposit may be required. Additional charges may be assessed depending on the system impact and payment will be required prior to energizing the facilities. On acceptance by the Utilities Commission, the application constitutes a service contract and becomes effective at the time the customer's electric service is connected. The Utilities Commission will designate the point of delivery and will not connect the electric service until the necessary application for electric service has been made, Contribution-in-Aid-of-Construction, any deposit and/or connection charge is paid or other contractual arrangement has been accepted. Application and payment for electric service shall be obtained prior to issuance of a building permit.

B. Apportionment of Costs For Utilities Commission System Extensions/Additions

Upon acceptance of the Application for New Service described above, the Utilities Commission will proceed to do such work and to provide and install such equipment as may be necessary in order to render service. This may include the extension of an existing line when necessary. In general, where the major portion of an anticipated extension will be built on public right-of-ways and the new Customer (not Developer) can reasonably be characterized as permanent, and then the Utilities Commission will do all necessary overhead construction at no cost to the Customer. Underground extension may require a Contribution-in-Aid-of-Construction determined by the Engineering Department. Where these guidelines clearly do not apply, the Utilities Commission may charge the Customer all costs in excess of 2 ½ times the estimated annual non-fuel revenue, (exclusive of the costs for transformers, secondary connections, and meters), and/or such other charges as the particular circumstance may dictate. When kW demand factors, intermittent usage patterns, or premature investment result in necessarily

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inefficient utilization of the Utilities Commission’s facilities, the Utilities Commission may require cash advances, minimum guarantees, or other means of providing a fair return on investment.

Where practically possible, the Utilities Commission standard facilities installation is overhead. Should underground facilities be required by a Governmental Authority and/or requested by the customer/developer, a Contribution-in-Aid-of-Construction will be required. Contribution-in-Aid-of-Construction charges will not include work performed by the customer/developer as requested by the Utilities Commission.

The following are some examples of situations where the Utilities Commission may require that a customer/developer provide a Contribution-in-Aid-of-Construction:

- A customer/developer requesting a small three-phase service in areas where only single-phase distribution exists, especially residential areas.
- Lengthy extensions on private property.
- Extensions along public right-of-way to serve low usage loads, such as lighted sign boards and pumps where connection of additional customers is unlikely.
- A customer/developer requesting the Utilities Commission to provide an additional service voltage and/or point of service.
- A customer/developer requesting and/or required to provide underground facilities.

C. Deposits/Settlements

Before receiving service, the Customer may be required to pay a monetary deposit, the amount of which shall be set by the Utilities Commission, in accordance with the customer deposit policy. Such amounts may be changed from time to time by the Commission at its discretion. Information as to the applicable charges will be provided to the Customer by the Utilities Commission Customer Service Department when preparing the application for service. This deposit will refund towards the Customer’s final statement balance, any unused portion of the deposit(s), including interest thereon, will be refunded. Refund is contingent upon adequate identification. Deposit receipts are not negotiable or transferable and the deposit is refundable to the Customer whose name appears thereon. It is stipulated that the Customer shall be responsible for all charges incurred by said customer regardless of the location of service or the number of service locations at which the customer takes service.
D. Withholding or Discontinuing Service

The Utilities Commission reserves the right to discontinue service without notice for any of the following reasons:

1. For repairs.

2. For want of supplies.

3. For fraudulent representation in relation to consumption.


5. Acts or occurrences beyond the control of the Utilities Commission.

The Utilities Commission reserves the right to discontinue service upon reasonable notice for any of the following reasons:

1. Non-payment of bill when due, in accordance with the disconnect policy.

2. For violation of these Rules and Standards.

The Utilities Commission may withhold a new service or discontinue existing service unless all past due indebtedness to the Utilities Commission at any one or more service locations of a person, family, household, organization or business has been settled in full; provided, however, that said past due indebtedness may, at the option of the Utilities Commission, be transferred to any active account of the Customer and upon so being transferred becomes a part thereof.

E. Metering

The Utilities Commission will furnish the necessary watt-hour meter(s) for the specified service. All electricity furnished shall be determined by said meter measurements, except in cases where the meter fails to record accurately, due to meter defect not by the Customer, in which case equitable adjustment will be made in accordance with Section 7.08. Meter readings will be taken monthly and bills rendered monthly. Bills must be paid to the Utilities Commission and are due when rendered. Bills which become past due as determined by the current Utilities Commission Policy may subject the service to be discontinued with reasonable notice. A reconnecting fee and an additional deposit may be required to reconnect service.
1.02 **RATES, CHARGES AND FEES**

Utilities Commission staff will determine the current Utilities Commission's Rate Schedule or Code which is to apply. In cases where more than one Rate Schedule or Code may apply, the Utilities Commission will advise any Customer as to the rate best adapted to existing and/or anticipated service requirements as defined by the Customer, but does not assume responsibility for continuance of the lowest annual cost under the rate selected. A Customer, having been assigned a rate adapted to his/her service, will not be changed to another rate unless there is a substantial revision in the character of his/her service.

The Utilities Commission reserves the right to change or amend its Rules and Standards, rates, or other charges, at any time for any reason.

1.03 **RIGHT-OF-WAY AND ACCESS**

Duly authorized agents of the Utilities Commission shall at all times have access to the Utilities Commission's facilities on the customer's premises for the purpose of installing, maintaining, inspecting and removing the Utilities Commission's property, and shall have access to the premises during normal working hours for the purpose of meter reading. Failure to provide such access may be grounds for estimated meter readings or discontinuance of service. The Utilities Commission shall not be liable for trespass during the performance of these activities. The customer shall grant or cause to be granted to the Utilities Commission without cost to the Utilities Commission, all rights, easements, permits and privileges which, in the opinion of the Utilities Commission, are necessary for the rendering of service to the customer.

1.04 **RELOCATION OF THE UTILITIES COMMISSION'S FACILITIES DUE TO CUSTOMER ACTION**

Where there is a change in the customer’s operation or construction which, in the judgment of the Utilities Commission, makes rearrangement of the Utilities Commission's facilities necessary, or if relocation of the Utilities Commission's facilities is requested by the customer for his purposes, such relocation or rearrangement may be performed by the Utilities Commission in accordance with industry practice and the customer will be responsible for a Contribution-in-Aid-of-Construction. Costs associated with the betterment of Utilities Commission facilities will not be included in the cost calculations.
1.05 **RESALE OF ELECTRICITY PROHIBITED**

The electric service purchased from the Utilities Commission shall be used by the Customer only for the purposes specified in the application for service, and the Customer shall not resell such service. Electric service furnished to the Customer shall be rendered directly to him/her through the Utilities Commission's individual meter, shall be for his own use, and shall not be re-metered by him/her for the purpose of selling electric service to lessees, tenants or others.

1.06 **SUB-SERVING BY CUSTOMER PROHIBITED**

The Customer will not build or extend his lines across or under a street, alley, lane, court, avenue or other right-of-ways in order to furnish service for another property through one meter, even though such property is owned by the Customer unless written consent is obtained from the Utilities Commission. Consent may be given only when such properties are operated as one integral unit, under the same name, for carrying on parts of the same business. When and if such consent is given, the Customer must obtain any necessary city, county or state municipal permits, and all construction shall be in accordance with applicable codes, installed by duly licensed electricians and subjected to applicable inspection by the authority having jurisdiction.

1.07 **LIMITS OF THE UTILITIES COMMISSION’S LIABILITY**

The Utilities Commission shall use reasonable diligence at all times to provide dependable service at the nominal voltage, but DOES NOT GUARANTEE, NOR WILL IT BE LIABLE TO THE CUSTOMER, FOR COMPLETE OR PARTIAL FAILURE OR INTERRUPTION OF SERVICE, FOR FLUCTUATIONS IN VOLTAGE, OR FOR PHASE FAILURE OR REVERSAL.

The Utilities Commission shall not be liable for any occurrence, act or omission caused directly or indirectly by mechanical failure of equipment and/or facilities, by repairs or adjustments to its system, for want of supply, or by riots, strikes, civil unrest, insurrections, accident, litigation, interference by Federal, State or Municipal Governments, acts of God, acts of the public enemy or any other cause beyond the Utilities Commission’s control.

After the electric energy passes the point of delivery and/or the metering equipment of the Utilities Commission, it becomes the property of the Customer, and the Utilities Commission shall not be liable for loss or damage to any person or property whatsoever resulting directly or indirectly from the use or misuse or presence of said electric energy on the Customer's premises.
1.08 THE UTILITIES COMMISSION DOES NOT WORK ON CUSTOMER'S FACILITY

Except as may be specifically mentioned in these Rules and Standards or in related Utilities Commission Policies and Procedures, the Utilities Commission does not install or repair wiring or equipment on Customer's premises. The Utilities Commission cannot be responsible for the electric system beyond the point of delivery and/or meter (service entrance) and does not assume any responsibility for or liability arising because of the condition of wires or apparatus on the premises of any Customer beyond this point.

1.09 DEVELOPER’S AGREEMENT AND ADDENDUM

Developers of commercial or residential projects are required to enter into a Developer’s Agreement and Addendum with the Utilities Commission. The Engineering Department must be contacted regarding Developer’s Agreements and Addendum.

1.10 ALTERATIONS OR ADDITIONS TO CUSTOMER’S INSTALLATION

The design of the Utilities Commission’s equipment serving the Customer is based upon the facts given on the application for electric service and/or in conference with the Utilities Commission’s personnel. Therefore, no significant additions or changes should be made to the Customer’s installation without first notifying the proper inspection authority and the Utilities Commission, since such activities may require upgrading of the Utilities Commission’s system or a change in service voltage. Failure to provide such notification may affect the quality of the Customer’s own service and also that of other Customers supplied from the same facilities. Extreme cases may require disconnection of service while corrective action is taken.

1.11 PRIVATE USE OF THE UTILITIES COMMISSION’S FACILITIES PROHIBITED

Except as may be permitted by contract with other entities, or by written permission for one-time temporary public or quasi-public functions, no person or entity shall use the Utilities Commission’s poles, wires, towers, structures or other facilities for the purpose of fastening or supporting any radio or television aerials or other equipment; nor any wires, ropes, signs, banners or other facilities; nor locate same in proximity to the Utilities Commission’s property or facilities. The Utilities Commission shall have the right to order that such items be removed, or to remove same and charge the violator for such removal without any liability for the removal or the manner of removal.
1.12 **DISCONNECTION OR RECONNECTION OF ANY UTILITIES COMMISSION ELECTRIC FACILITY PROHIBITED**

No electrical contractor/shop will be authorized to disconnect any Utilities Commission service for repairs. All disconnects must be requested through the T&D Division and made by Utilities Commission personnel. This action is necessitated by liability considerations involving possible injuries to persons not employed by the Utilities Commission. Therefore, when a disconnect is required, please call the Electric Dispatcher at 386-427-1366 24 hours in advance. Your request will be handled in a timely manner, and your cooperation will be appreciated.

1.13 **OVERHEAD TO UNDERGROUND SYSTEM CONVERSION**

Where feasible and when requested, the cost and Contribution-in-Aid-of-Construction of replacing the existing overhead distribution with underground facilities will be determined by the Utilities Commission. Conversion will begin when payments, easements and coordination between all parties have been finalized.

1.14 **LOAD MANAGEMENT**

An Energy Conservation Program that interrupts electric service to the water heater, central heating and cooling systems during peak demand periods. The frequency and duration of the interruption is minimized to avoid any inconvenience to the Customer. The customers participating in this program will receive monthly load management credits.

1.15 **PHOTOVOLTAIC SYSTEMS**

The Utilities Commission offers a “Net Metering Rider Interconnection Agreement”. This agreement has been accepted by the Florida Public Service Commission and provides guidelines/requirements for Tier 1, 2 and 3 installations. The agreements can be found on the Utilities Commission’s website at the link below:


Customers shall contact the Engineering Department for additional information.

Independent contractors installing photovoltaic systems within the Utilities Commission’s service area are required to contact the Engineering Department prior to said installation to ensure that the integrity of the Commission’s electric system is protected and that said equipment meets all applicable standards.
1.16 **TRENCH SAFETY ACT**

Compliance with The Trench Safety Act, and all other applicable City, County, State, Federal safety codes, such as OSHA, is required at all times when performing work within the Utilities Commission’s service area.

1.17 **SUNSHINE STATE ONE-CALL**

Compliance with all provisions of Sunshine State One-Call regarding underground utility locates is required.
SECTION 2 - SECONDARY (0-600V) SERVICES, GENERAL

2.01 BASIC REQUIREMENT FOR CUSTOMER’S FACILITIES

All wiring and electrical equipment of the Customer shall be installed in accordance with these Rules and Standards and in compliance with the latest edition of the National Electrical Code and the National Electric Safety Code, as well as with guidelines of local inspection authorities. All wiring installations must be inspected and approved by the Authority Having Jurisdiction as required by law. The Utilities Commission may refuse service to any new or altered installation or disconnect service to any existing installation which, in the opinion of the Utilities Commission, constitutes a hazard to the public, to other Customers, or to its employees. The Customer is cautioned against the purchase and use of electrical equipment that is not approved by a competent authority.

2.02 COMBINING OF EXISTING MULTI-METER SERVICES REQUIRED

In cases where a Customer has two or more existing service voltages serving one point of delivery, i.e., a 120/240 volt 3-wire single phase and a 240 volt 3-wire and/or other three-phase, and the Customer for any reason revises either service, the Customer shall be required to combine these services into a single metered location, i.e., a 120/240 volt or other 4-wire service. In the interim, both shall be clearly labeled. For further multi-meter services, refer to Section 2.04.

2.03 MISCELLANEOUS TECHNICAL AND LEGAL REQUIREMENTS

A. When an existing service entrance of copper conductors is replaced with a service entrance of aluminum conductors, the meter socket must be equipped with terminals approved for use with the aluminum conductors.

B. It is each Customer’s responsibility to provide and maintain an adequate ground for his wiring system, independent of the Utilities Commission. The Utilities Commission will not be responsible for equipment or other damage due to insufficient grounding. Due to the level of lightning incidence within the Utilities Commission service area, it is recommended that code requirements be viewed as the minimum effort.

C. The neutral conductor of each service entrance in conduit shall be plainly marked in white at the service entrance and at the meter location. All service entrance conductors must be insulated. The 195-207 volt "high leg" of each 4-wire, three-phase Delta Service shall be plainly marked in orange at the point of delivery and at the metering point.
D. Where conduit or metallic tubing is used, fittings with removable covers should be avoided in the line service entrance run if possible. If such fittings cannot be avoided, or in any other situation where service entrance wires are structurally concealed, access to the premises shall be provided at all reasonable times for any inspection which may be necessary to verify the security of such installations.

E. Where a group of commercial occupancies are served from a service raceway or wireway, the covers to the pull boxes must be provided with a means for sealing or locking where individual service taps are made from such raceway, wireway or "gutter."

2.04 TYPES OF SECONDARY SERVICE AVAILABLE

It is essential that the Customer consult the Utilities Commission Engineering Department before proceeding with the purchase of equipment or installation of wiring. The type of service provided will be determined by the Utilities Commission based upon the character, size and location of the Customer's load. The following table will be used as a guide in determining the type of service available for the Customer. A Contribution-in-Aid-of-Construction may be required by the Customer.

<table>
<thead>
<tr>
<th>SECONDARY VOLTAGE (60 Hertz AC)</th>
<th>NUMBER OF PHASES</th>
<th>COMBINED THREE-PHASE EQUIPMENT DEMAND REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>120/240 V - 3-Wire</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>*120/240 V - 4-Wire (Open Delta)</td>
<td>3</td>
<td>5 kVA Minimum</td>
</tr>
<tr>
<td>*120/240 V - 4-Wire (Closed Delta)</td>
<td>3</td>
<td>25 kVA Minimum for Three-Phase Service</td>
</tr>
<tr>
<td>**120/208 V - 4-Wire</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>**277/480 V - 4-Wire</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Three-phase availability as per rate schedule - minimum 5 h.p.
*May not be available in residential areas.
**Pad-mounted transformers usually placed upon the Customer's property.

2.05 VOLTAGE CONTROL

The Utilities Commission will deliver voltage in accordance with the following guidelines:

A. Except under emergency situations, for service rendered to Customers whose principal consumption shall be for lighting and/or residential purposes, the voltage at the point of delivery shall not exceed 5 % above or below the service voltage assigned.
B. Except for emergency situations, for service rendered principally for general purposes, the voltage at the point of delivery shall not exceed 7 ½ % above or below the service voltage assigned.

Upon request, the Utilities Commission will test the voltage supplied to the Customer at the point of delivery and take corrective action if it is found to be consistently outside the specified ranges. The responsibility for providing unusually close voltage regulation, where required by the nature of the Customer's load, shall rest with the Customer.

2.06 PROTECTION BY CUSTOMER OF UTILITIES COMMISSION PROPERTY

The Customer shall properly protect the Utilities Commission's property on the Customer's premises, and shall permit no one but persons authorized by law to have access to the Utilities Commission's wiring, meters and apparatus. In the event of any loss or damage to the property of the Utilities Commission caused by or arising out of carelessness, neglect or misuse by the Customer, the cost of replacing or repairing such damage shall be paid by the Customer. The Customer should not allow:

A. Trees, vines or shrubs to interfere with the Utilities Commission's adjacent overhead insulated secondary conductors and not to obstruct visual reading of meters.

B. The planting of ornamental shrubs or other growth to hinder ventilation for, and maintenance of, any electrical facilities, including, but not limited to, pad-mount transformers and overhead conductors.

C. Storage or installation of items not necessary for providing service in vault-type enclosures.

Such interference may become hazardous to persons and may cause the Customer's service to be interrupted or service to other Customers to be adversely affected.
SECTION 3 - SECONDARY (0-600V) SERVICES, OVERHEAD

3.01 LOCATION OF SERVICE ENTRANCE

The Utilities Commission will designate the point of delivery and/or service entrance location depending upon the type of service facility. Typical residential or small commercial service locations shall be within parameters shown in Electric Detail 001 and 002. The Utilities Commission will supply the first clearance pole for the designated service. Additional clearance poles will require Customer contributions. The Customer or his authorized agent must contact the Utilities Commission Engineering Department for a written service location prior to installation of the Customer’s wiring. The UTILITIES COMMISSION WILL NOT BE BOUND BY SERVICE LOCATIONS CLAIMED TO HAVE BEEN GIVEN ORALLY.

3.02 ALTERNATE SERVICE ENTRANCE LOCATION

In cases where the Customer desires a point of delivery and/or service location other than the one designated by the authorized Utilities Commission representative, the desired alternate location will be honored if the Customer pays a Contribution-in-Aid-of-Construction for any additional expenses required to make the service connection to the alternate point of delivery and/or service location, and provided that the alternate point of delivery and/or service location meets all codes, local ordinance requirements and the provisions of any specialized Utilities Commission Policy and/or Procedure.

3.03 SERVICE DROP CLEARANCES AND POINTS OF ATTACHMENT

It is the Customer’s responsibility to provide a suitable support for the attachment of service drop conductors and all tree trimming and clearing on their property. The point of attachment must be located such that the lowest sag of a new or replacement service drop will be in accordance with the clearances indicated in the following table:

<table>
<thead>
<tr>
<th>Where Wires Cross Over Or Pass By</th>
<th>Minimum Vertical or Horizontal Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line clearance over roof</td>
<td>8 Feet</td>
</tr>
<tr>
<td>Sidewalks, roofs or projecting platforms accessible to pedestrians only</td>
<td>11 Feet</td>
</tr>
<tr>
<td>Residential driveway not subject to truck traffic</td>
<td>12 Feet</td>
</tr>
<tr>
<td>Commercial areas not subject to truck traffic</td>
<td>15 Feet</td>
</tr>
<tr>
<td>Public streets, alleys, roads and commercial driveways</td>
<td>18 Feet</td>
</tr>
</tbody>
</table>
Should the construction of the building not provide proper clearances for a wall or eave attached, a rigid galvanized steel mast or other approved support must be provided by the Customer to elevate the point of attachment as shown in Electric Detail 001 & 002. This mast or other structure must be strong enough to support the sustained load of the service drop. In no case is this mast or structure to be used as a support for any other attachments. 3 feet of service entrance wire (or 5 feet for sizes 4/0 and larger) shall be left projecting from the service weatherhead or current transformers for connection by the Utilities Commission to the service drop.

Where the installation involves more than one service riser, it is the responsibility of the Customer to connect the conductors from each riser together. The Utilities Commission shall provide only one connection per phase.

3.04 SERVICES OVER 600 AMPERES

Services exceeding 600 amperes in capacity should be run underground to the Utilities Commission’s point of delivery, unless the point of attachment to the Utilities Commission’s pole can be sufficiently close to the Customer’s service location to minimize structural loads and maintain required clearances. Any service exceeding 800 amperes shall be run underground to the Utilities Commission’s point of delivery, see Section 4.

3.05 MOBILE HOME (HOUSE TRAILER) SERVICE

Individual service will be provided to a mobile home if it is permanently located in other than a recognized mobile home park, and if the service entrance equipment and mounting facilities conform to specifications shown in Electric Detail 001. If the mobile home is located in a recognized Mobile Home Park, consult the Utilities Commission Engineering Department relative to application of current Utilities Commission Underground Distribution Policy and Procedure.

3.06 TEMPORARY SERVICE

Typical temporary service arrangements are shown in Electric Detail 003. Temporary installation of service entrance, meter and other wiring shall be made and inspected in the same manner as permanent installations. The temporary service drop or temporary construction wires or cables shall not be tied to the Customer's permanent panel except for test purposes. Temporary poles shall be installed to maintain proper clearance as detailed in Section 3.03. If appropriate, a Contribution-in-Aid-of-Construction may be required.
3.07 TEMPORARY SERVICES, LARGE OR UNUSUAL

The Engineering Department should be consulted when temporary service is of an unusual nature. Expenses incurred by the Utilities Commission (exclusive of service drop and the portion of required facility which can be utilized for permanent service) require a Contribution-in-Aid-of-Construction and must be paid by the Customer BEFORE temporary service will be connected.
SECTION 4 - SECONDARY (0-600V) SERVICES, UNDERGROUND

4.01 GENERAL

In certain prescribed districts where the Utilities Commission has existing underground distribution systems, underground service must be used and overhead service will not be made available to the Customer. When the Customer desires or is required to be served from transformers in vaults or enclosures in his building, he must coordinate design and/or purchase of equipment with the Engineering Department. All electricians will be required to tag underground services at the transformer with a designation of the apartment number, condominium unit, etc., that it will serve.

4.02 UNDERGROUND SERVICE FROM OVERHEAD POLE-MOUNTED TRANSFORMERS

Underground service from the Utilities Commission’s pole-mounted transformers may be furnished when the Customer installs the conduit. The requirements for residential and commercial service are as follows:

**Residential** - The Customer shall install one 2 ½ inch conduit, with an additional 1 inch conduit for Utilities Commission future fiber, from the meter enclosure to the pole designated by the Utilities Commission a minimum of 24 inches below grade. Said conduit shall consist of elbows which are galvanized (18 inch radii) or PVC (24 inch radii). The Utilities Commission will supply and pull 2/0 aluminum cable up to 50 feet. Services exceeding 2/0 aluminum and/or 50 feet will require a Contribution-in-Aid-of-Construction. The Utilities Commission will supply cable, pull and maintain the lateral, in accordance with the Utilities Commission Underground Resolution and Tariff.

**Commercial** - The Customer shall install cable and conduit(s), with an additional 1 inch conduit for Utilities Commission future fiber, from the meter enclosure to the point of delivery designated by the Utilities Commission. The conduits shall extend a minimum of 12 inches above ground and have a protective cap if empty. A minimum of 35 feet of service cable, additional conduit and weatherhead shall be provided in order that the required connections can be properly made by the Utilities Commission. Both the service and conduit must conform to all codes. Commercial services are owned and maintained by the Customer.

Customers will be required to install underground secondary conduit under the street to be coordinated with the Utilities Commission Engineering Department.
4.03 SERVICE FROM SMALL INDIVIDUAL PAD-MOUNTED TRANSFORMERS FED FROM AN OVERHEAD SOURCE

Upon request, electric service may be supplied by pad-mounted transformers located on private property near the load and fed by underground cable from nearby Utilities Commission facilities. Such installations will be reviewed on an individual basis by the Engineering Department and may require a Contribution-in-Aid-of-Construction. Conduit installations shall consist of elbows which are galvanized (18 inch radii) or PVC (24 inch radii).

The Customer shall be required to install conduit from existing facilities designated by the Utilities Commission to the proposed pad-mounted transformer location with an additional two inch conduit for the Utilities Commission future fiber. Conduits shall be buried a minimum of 36 inches below finished grade.

The Customer will also install conduit from the pad-mounted transformer location to the meter can with an additional one inch conduit for the Utilities Commission future fiber 24 inches below finished grade.

The Customer shall also be required to provide an easement allowing ingress and egress by Utilities Commission personnel for the purpose of installation and maintenance of facilities. The easement will contain the primary cable and transformer. Commercial customers shall supply, install and maintain the service laterals from the transformer to his load center and leave 6 feet excess cable above the pad surface for the Utilities Commission to make connections to the transformer. Residential customers shall supply trench, conduit and backfill. Depending on the type of installation, the Utilities Commission may require a Contribution-in-Aid-of Construction.

4.04 PAD-MOUNTED TRANSFORMER/VAULT SERVICES (75 kVA AND ABOVE)

Large services meeting the minimum load requirement defined in Section 2.04 or exceeding the maximum overhead load defined in Section 3.04 may be served by pad-mounted transformers. Such installations will be subject to a Contribution-in-Aid-of-Construction and/or the following general apportionment of costs and responsibilities based upon the most appropriate system design as determined by the Utilities Commission Engineering Department:

A. The Customer shall submit two copies of the site plans to the New Business Specialists desired transformer pad or vault location indicated thereon. The location must be accessible to heavy equipment and shall be clear of any overhead obstructions. Complete electrical load data must accompany the plans. The Utilities Commission will return one copy of the site plan showing the approved location for the transformer or vault, and all necessary electrical equipment.
B. The Customer shall obtain the Utilities Commission's easement form, if required, complete and return this form to the Utilities Commission Engineering Department.

C. The Customer shall furnish and install the transformer pad to the Utilities Commission's specifications plus conduit for the following:

- two 4 inch schedule 40 PVC or galvanized steel conduits for three-phase or,
- one - two 2 inch schedule 40 PVC or galvanized steel conduits for single phase primary installation, at 36” minimum cover based on finished grade, and an electric caution warning tape 12” below finished grade from the primary compartment of the transformer pad or vault location to the pole or manhole designated by the Utilities Commission, (including galvanized elbows as needed).

The Customer will be required to install an additional 2 inch spare conduit and the Customer may be required to furnish and install pull boxes and/or switchgear pad as specified by the Utilities Commission. The Customer may also be required to install additional conduit runs for future expansion. Conduit shall have a mandrel with detectable mule tape, or approved equal, and empty conduit shall have end plugs prior to backfill.

All conduits installed for the Utilities Commission’s use will be inspected and approved by a Utilities Commission representative. All multiple transformer locations such as shopping centers, office buildings, etc., may require additional conduit systems and pull boxes as designated by the Utilities Commission to provide for the possibility of two sources of primary distribution. The Customer shall supply, install and maintain the service laterals from the transformer(s) to his load center(s), and leave 6 feet excess cable above the pad surface for the Utilities Commission to make connections to the transformer(s). The quality and timeliness of each of the above responsibilities of the Customer will, at all times, be subject to inspection and review by the Utilities Commission.

D. The Utilities Commission will supply and install transformer(s) upon the owner's pad or in his vault. The Utilities Commission will also furnish and install primary (high-voltage) cables from a pole or manhole (usually located on public right-of-ways) to the Customer's transformer pad or vault.

E. The Utilities Commission will make all primary and secondary connections within the transformer, vault, or other enclosures, set any poles or manholes, and make connections.
F. When a Customer's service is altered or expanded, he shall be required to make any modifications necessary to serve the new portion of his service from existing pad-mounted transformer(s) or vault(s).

G. Current transformers for metering will not be permitted in or on the terminal compartment of pad-mounted transformers.

H. For 75 to 300 KVA, see Electric Detail 029 & 030 and for 500 kVA and above, see Electric Detail 031 & 032.

4.05 CUSTOMER’S DUTY TO PROTECT PAD-MOUNTED TRANSFORMERS

The provisions of Section 2.06 shall apply and in addition thereto, there shall be no air conditioning or other heat-producing equipment located adjacent to the pad-mounted transformer that would alter the normal air circulation around the transformer. Trees, shrubs and other obstructions shall not be located within 8 feet of the front and within 3 feet of the sides and/or rear of transformers. Prior to planting, it is necessary to call Sunshine State One-Call of Florida at 1-800-432-4770 so that all buried utilities can be located. WHERE THE TRANSFORMER LOCATION IS SUSCEPTIBLE TO VEHICULAR DAMAGE, APPROPRIATE PROTECTIVE GUARD STRUCTURES MAY BE REQUIRED BY THE UTILITIES COMMISSION, see Electric Details 024-026.

4.06 PERMANENT SERVICE, UNDERGROUND

The Utilities Commission Engineering Department must assign a point of delivery and a service location prior to installation of Customer's wiring, as defined in Section 3.01. When the permanent service location can be utilized as the temporary service, the installation should be as shown in Electric Detail 006. The temporary wires or cables shall not be tied to the Customer's permanent panel except for test purposes.

4.07 TEMPORARY SERVICE, UNDERGROUND

Typical temporary service arrangement is shown in Electric Detail 006. Temporary installation of service entrance, meter and other wiring shall be made and inspected by the corresponding inspecting authority in the same manner as permanent installations. The temporary wires or cables shall not be tied to the Customer's permanent panel except for test purposes. The Utilities Commission Engineering Department should be consulted when temporary service is of an unusual nature. Estimated Contribution-in-Aid-of-Construction expenses must be paid by the Customer BEFORE temporary service will be connected.
4.08  **EQUIPMENT ENCLOSURE INSTALLATION**

Where conditions are such that it is necessary to install transformer(s) and accessories on the Customer's premises, the Customer must provide a suitable enclosure in which to house such equipment. The Customer shall provide all primary conduit to a point designated by the Utilities Commission. The Customer will own and maintain all secondary cable and/or conduit. The Utilities Commission Engineering Department will define physical parameters for all enclosures, including appropriate ventilation and security requirements. If applicable, the Utilities Commission may also require a Contribution-in-Aid-of-Construction.

The enclosure shall not contain any Customer-owned equipment for building services facilities such as: secondary fuses; switches; meters; load control equipment; gas, oil, steam or water pipes; ventilation ducts other than those required by the Utilities Commission.

The enclosure and its contents shall be under the supervision of the Utilities Commission, and shall have provisions for locking and security sealing by the Utilities Commission. Unauthorized persons will not be permitted to enter the enclosure.

The Customer will be responsible for maintaining the enclosure and all associated structures with the exception of UC electrical equipment.

New enclosure and/or modifications to existing enclosures shall be coordinated with and approved by the Utilities Commission.
SECTION 5 - NEW SUBDIVISIONS

5.01 GENERAL

When designing a new residential subdivision, the developer is required to submit a digital copy of the proposed development to the Utilities Commission New Business Specialist. A copy of the electric system design will be returned to the developer to be inserted into the construction set of drawings to be issued for approval.

5.02 UNDERGROUND RESIDENTIAL DEVELOPMENTS

Where local regulations, Florida Public Service Commission regulations or provisions of these Rules and Standards require, the electric system shall be placed underground. In this case, the developer/builder will be required to pay a Contribution-in-Aid-of-Construction. Also, additional charges may be assessed depending on the system impact and payment will be required prior to start of installation. Contribution-in-Aid-of-Construction charges will include costs for additional underground cables, fuse enclosures, switchgear, etc., as required to accommodate the developer/builder’s lot and/or street layout. The developer/builder is required to furnish and install all electric primary and secondary conduits, all fiber optic conduits and one-inch conduits to remotely read water meters. If fiber cable is deployed immediately, the Utilities Commission will furnish and the developer/builder will install fiber boxes. The conduit drawing and instructions will be supplied by the Utilities Commission. In addition, final grade and all lot lines must be clearly marked prior to conduit installation.

The developer/builder will receive a credit for work performed as required by the Utilities Commission. These credits will be applied towards Contribution-in-Aid-of-Construction costs.

The Utilities Commission Engineering Department must be notified before any installation of conduit is to begin. The Utilities Commission will install and maintain all transformers, pad-mounted switchgear, primary cable, secondary cable and residential services as described in Section 4.

All concrete pads for transformers and switchgear shall be supplied by the developer in accordance with Utilities Commission specifications. Where feasible, the subdivision electric system will be located in a platted dedicated electric utility easement as described in Section 1.03.
5.03 OVERHEAD RESIDENTIAL DEVELOPMENTS

In cases where overhead distribution of electricity is to be utilized, the Utilities Commission’s poles will be set in the right-of-way. All guying easements required by the Utilities Commission must be executed before any construction will begin. Any clearing and tree trimming shall also be completed before construction, and will be the responsibility of the developer/owner. Blanket easements will not be accepted by the Utilities Commission.
SECTION 6 - PRIMARY "MASTER METERED" SERVICES

6.01 GENERAL

Three-phase primary metered service is available to Customers who provide, install and maintain their own distribution system and equipment. The metering of this service will be at the primary (high voltage) level. The primary voltage to be supplied shall be determined by the Utilities Commission Engineering Department.

6.02 PROTECTIVE EQUIPMENT RATINGS

Adequate overcurrent protection and disconnecting means acceptable to the Utilities Commission and the appropriate inspection authority shall be provided by the Customer. Information on interrupting capacity requirements, coordination with fuses, reclosers, breakers, etc., and actual system voltages of the Utilities Commission’s system shall be provided by the Utilities Commission Engineering Department for voltages up to 22.9 kV. Relay settings and/or fuse coordination must be approved prior to the system being energized.

6.03 METER LOCATION, GENERAL

The Customer’s service location for a primary service is at the metering point. As in the case of secondary services, the load side of the metering point is that point beyond which the Customer is totally responsible for installation and maintenance. For primary metered services, the Utilities Commission will furnish, install and maintain the metering equipment and make all electrical connections to same.

6.04 METER LOCATION, OVERHEAD

Electric Details 002 and 007 depict a typical overhead primary meter installation. If site conditions are such that this installation must be located on the Customer’s property, appropriate easements will be required, see Section 1.03, and other pertinent provisions of these rules shall at all times be applicable.

6.05 METER LOCATION, UNDERGROUND

Where it is necessary to install underground metering equipment on the Customer's property, the Utilities Commission will determine the location and type of this equipment, and the Customer shall supply and install the pad and the primary conduit. Specific requirements must be obtained from the Utilities Commission Engineering Department.
SECTION 7 - METERS AND METERING EQUIPMENT

7.01 GENERAL

The Utilities Commission furnishes and installs, at its own expense, electric meters to measure the electric energy used by the Customer. The Utilities Commission also furnishes instrument transformers and safety test blocks of proper type and size for all installations except meter centers. This Section depicts correct installation of meters, sockets and other metering equipment. Utilities Commission approved current transformers (CT) and/or voltage transformer (PT) stainless steel or aluminum enclosures with provisions for locking will be furnished and installed by the Customer or Contractor.

7.02 TYPES AND SIZES OF METERS AND ASSOCIATED EQUIPMENT

Meters are provided for all service voltages available. Service voltages greater than 120V phase to ground require voltage transformers (PT). Meters basically fall into three (3) categories: up to and including 400 amp secondary services, over 400 amp secondary services which require current transformers (CT), and primary services. Electric Details 008 – 016 illustrates the various types of sockets. Meters with over 400 amp secondary service will require sufficient advance notice.

7.03 OBTAINING METER EQUIPMENT AND/OR APPROVALS THEREON

Meter centers must be approved by the appropriate inspection authority and shall be furnished, installed and maintained by the Customer.

7.04 NUMBER OF METERS

The Utilities Commission will establish one point of delivery for each Customer. Existing multiple metering will be eliminated upon revision of the service installation when substantial remodeling or increase in requirements occur, see Section 2.02.

7.05 IDENTIFICATION OF METERS

A. All meter sockets or enclosures on multiple occupancy dwellings, trailer (mobile homes) services or commercial services requiring the use of more than one meter shall be permanently identified as to street number, apartment number or building section which that meter serves. Identification marking shall be placed inside as well as outside the socket enclosures. Proper identification is required before electric service is provided.

B. Meter socket or enclosure covers are not approved as permanent for identification purposes.
C. Apartment doors are not approved as permanent for identification purposes, but rather the permanent structure wall adjacent thereto shall be used.

D. For sign, trailer and temporary poles, addresses must be installed on the service pole with a minimum size of 3 inch numbers oriented so as to be visible from the nearest street, alley or trail.

E. The Customer will be responsible for permanent identification of meters.

7.06 LOCATION OF METERS

A. Meter locations shall be approved by the Utilities Commission Engineering Department.

B. All meter sockets and enclosures shall be located a maximum of 6 feet and a minimum of 4 feet in height from the center line of the meter to finish grade, unless stipulated otherwise by the Utilities Commission Engineering Department.

C. All secondary service meters shall be located on the line side of the main disconnecting means, outdoors, in a readily accessible space, which shall be kept free from obstructions at all times. In areas where locating meters outside would not be practical, approval of meter location must be obtained from the Meter Division.

D. If meter is inaccessible due to locked fences, building conditions, dogs or any other reason, the Customer may be required to relocate the meter socket or perform other changes to make meters accessible.

E. Meters on the driveway side of the building must have a minimum of 4 feet lateral clearance to the driveway, unless the meter is protected by a structural part of the building.

F. All signboard meter sockets shall be installed such that the meter will face the nearest trail, street or highway which is accessible to meter reading vehicles.

G. In cases of new construction of multiple units where it is not practical to locate the meters out-of-doors, it is recommended that architects incorporate into the plans a meter room within the building designed for the location of all meters and main switches. Liaison with the Meter Division is advised. Meter rooms must be lighted and are not to be used as storage rooms or for any other purposes. The owner shall supply the Utilities Commission with a key to each room.
7.07 INSTRUMENT TRANSFORMER (CT) SERVICES/RACEWAYS

A. Single phase secondary services over 400 amperes require instrument (current) transformers (CT’s) for secondary metering. Three-phase secondary services over 200 amperes require instrument (current) transformers (CT’s) for secondary metering.

B. Where through-type current transformers are used in conjunction with the bus bars, the contractor shall drill and tap the bus bars on the line side of transformers for voltage connections to the meter. All metering transformers shall be installed on the line side of the main disconnecting means.

C. Instrument transformers must be installed in a locking, water-tight enclosure. Enclosures must be approved by the Utilities Commission T&D Division and shall be furnished, installed and maintained by the Customer AND SHALL CONTAIN METERING TRANSFORMERS ONLY.

D. Metering instrument transformers shall not be installed in a manhole.

E. Primary Metered Services, discussed in Section 6, also require instrument transformers for metering purposes. These transformers are furnished, maintained and installed by the T&D Division.

F. Except for factory-built cubicles, all metering conductors shall be in a raceway exclusive of any other conductors.

G. Minimum size raceway from instrument transformer locations to meter enclosures shall be 1 inch. Raceways for CT secondaries shall have a pull wire left in the raceway by the electrical contractor. Should a raceway have four or more 90 degree bends or equivalent, a junction box shall be installed. Should conduit runs exceed 125 feet in length from the instrument transformers to the meter enclosure, contact the Utilities Commission Engineering Department for definition of requirements on a specific case basis.

H. All enclosures containing metered or unmetered conductors of bus shall have provisions to lock or seal.
7.08 METER TESTS AND ADJUSTMENTS OF BILLINGS FOR FAILURE OF METER

The Utilities Commission employs every practical means to maintain the standard accuracy of its meter. If, upon testing, any metering equipment is found to be in error by not more than 2%, previous recordings of such equipment shall be considered accurate in computing the billings for service under the applicable rate schedules; but such equipment shall be adjusted at once to standard accuracy. If, upon testing, any metering equipment shall be found to be in error by an amount exceeding 2%, then previous recordings by such equipment shall be corrected for such error for any period of error which is definitely known or agreed upon. In the event the period of error is not definitely known, or agreed upon, such correction shall be:

- ½ of the time elapsed since the date of last testing of the meter or
- 3 months prior to the date of present test, whichever is the lesser.

The Utilities Commission may require a deposit or payment to defray the cost of the testing.

7.09 METER TAMPERING

Only duly authorized agents of the Utilities Commission or persons authorized by law shall install or remove, turn on or turn off, or make any changes to any part of the Utilities Commission metering installation which may affect the accuracy of measurements. It is understood that electricians may remove meters when, in that person's judgment, it is urgent and necessary for the public's health, safety or welfare, and these electricians are to report such actions to the Utilities Commission and the local Inspection Department as soon as practical. Unauthorized connection to or tampering with the Utilities Commission metering equipment or the Utilities Commission seals placed on the equipment, or connection to unmetered service entrance conductors ahead of the metering equipment, subject the Customer to immediate discontinuance of service, prosecution under the laws of the State of Florida, adjustment of prior bills for service rendered, and reimbursement to the Utilities Commission for all extra expenses incurred, including any tampering charges in effect at the time of the event and charges as allowed by current Florida Statutes.
SECTION 8 - CUSTOMER UTILIZATION OF EQUIPMENT

8.01 GENERAL

The Utilities Commission builds and maintains adequate lines to supply proper service to all Customers using normal equipment. However, since equipment installed by one Customer may materially affect the adequacy and continuity of service to other Customers, and because the misuse of some equipment might constitute a fire hazard or endanger life, this section defines guidelines and regulations covering the more common installations of utilization equipment.

The Utilities Commission specifies only such requirements as are necessary to safeguard both the Customer and the Utilities Commission to the end that service may be rendered with maximum of safety and with a minimum of interruption or disturbance. The Customer should consult the Utilities Commission for additional details on special equipment which may not be covered in this section.

8.02 VOLTAGE FLUCTUATION LIMITS

Most of the voltage fluctuations on the distribution system are due to the Customer’s utilization of equipment such as motors, electric welders, arc furnaces, x-ray, radio and television broadcasting. Since such equipment operated by one Customer may materially affect the adequacy and continuity of service of another Customer, the Utilities Commission insists that all apparatus connected to its system be operated and maintained so that certain established limits of voltage fluctuations are not exceeded. The Utilities Commission shall require corrective action to Customer equipment which is operating in excess of these voltage fluctuation limits or which causes radio, television or other high frequency interference. Extreme cases may require disconnection of service by the Utilities Commission until corrective action is taken by the Customer.

Single phase air conditioners and heat pumps are treated separately from other motor loads. This is because the standard design of the electric distribution system includes capacity for their addition. Where these units are connected to a single phase 240 volts supply, the starting current shall not exceed the values listed below:

<table>
<thead>
<tr>
<th>Size (Tons)</th>
<th>BTU/H</th>
<th>Starting Current (Amps) @ 240 Volt and 95% P.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12,000</td>
<td>30</td>
</tr>
<tr>
<td>1 ½</td>
<td>18,000</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>24,000</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>36,000</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>48,000</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>60,000</td>
<td>150</td>
</tr>
</tbody>
</table>
If necessary, starting kits should be used to reduce starting currents to the above limits and shall be part of the original installation. If the starting current exceeds these limits, consult with the Utilities Commission Engineering Department.

Voltage fluctuation limitations are shown in the following table for motor starting and welder operation. Voltage fluctuation limitations for the operation of other types of equipment are shown by the graph in Electric Detail 019. These limitations are evaluated at the point on the Utilities Commission's system where the character of service to other Customers may be affected.

### VOLTAGE FLUCTUATION LIMIT

<table>
<thead>
<tr>
<th>Maximum Allowable Fluctuation</th>
<th>Equipment &amp; Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ %</td>
<td>Welders</td>
</tr>
<tr>
<td>1 %</td>
<td>Motors, unlimited starts per day</td>
</tr>
<tr>
<td>2 %</td>
<td>Motors, 2 starts per day, maximum</td>
</tr>
<tr>
<td>5 %</td>
<td>Motors, once per day</td>
</tr>
<tr>
<td></td>
<td>between 1 a.m. and 6 a.m.</td>
</tr>
<tr>
<td>Above 5 %</td>
<td>Not generally allowed</td>
</tr>
</tbody>
</table>

8.03 **MOTORS**

A. Protection of motors against undervoltage, overcurrent, phase failure, phase reversal and short circuit is the responsibility of the Customer.

B. Because of voltage disturbance to the Customer's wiring system, it is not advisable to connect motors of 1/3 h.p. or larger to lighting circuits. A separate circuit should be installed for such equipment.

C. Deviations of 5%, plus or minus, from a stipulated standard supply voltage are not uncommon to utility distribution systems and deviations as high as 10% may occur within the Customer's wiring system. Motors are generally guaranteed by the manufacturer to operate satisfactorily within these limits, but caution should be exercised when applying a motor or other item of equipment having a different nameplate voltage rating from that of the standard system voltage furnished by the Utilities Commission to the Customer.
D. Motors which cannot be safely subjected to full-voltage starting and processes which may create a safety hazard upon uncontrolled restart, should automatically assume a stop or off condition upon the interruption of the supply voltage. To prevent unnecessary shutdown, it is recommended that this device be equipped with a time delay feature so it will not function unless required.

E. The Utilities Commission has specified herein certain limits for the maximum allowable voltage drop due to starting currents of motors to be connected to their lines in order to save time and possible inconvenience. The Customer should consult the Utilities Commission Engineering Department before purchasing motors for use on the Utilities Commission's lines if the locked rotor current is greater than 130 amperes, 230 volt, single phase or 400 amperes, 230 volt, three-phase.

F. When a Customer's motor starting causes objectionable flicker to the system and/or other Customers, the Utilities Commission shall require installation of devices such as reduced voltage or part winding starters to limit starting in-rush currents to values that shall reduce flicker to acceptable levels.

8.04 AUXILIARY GENERATORS

If a Customer installs an emergency or stand-by generation system, a Utilities Commission approved switching and control scheme or mechanically-interlocked transfer switch shall be provided in the Customer's service entrance equipment to preclude the possibility that any energy generated by the Customer's equipment might be backfed into the Utilities Commission's system. Such generation systems and their associated equipment shall not be installed without written approval of the Utilities Commission Engineering Department. Failure to provide such safety switching equipment shall subject the Customer to possible disconnection of electric service by the Utilities Commission.

8.05 ARC WELDERS

Arc welders of the transformer type usually have such severe load characteristics that voltage dip and lighting flicker may result during their operation. Welders of this type can be detrimental to the service being rendered to other Customers, especially when served directly from the Utilities Commission's secondary lines. Before application of such welders, the Utilities Commission Engineering Department should be consulted.

When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the installation of additional equipment such as lines and transformers at the expense of the Customer.
8.06 **DC APPLIANCES OTHER THAN WELDERS**

When installing AC/DC converters or rectifiers where the desired DC voltage level is critical, care should be exercised in the selection of this equipment because of the voltage fluctuations that normally occur within the AC supply.

When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the installation of additional equipment such as lines and transformers at the expense of the Customer.

8.07 **COMPUTERS**

Whereas the Utilities Commission will maintain the best possible service to the Customer, care should be exercised in the selection of equipment because of the voltage fluctuations and interruptions that may exist within the AC supply. The Utilities Commission does not guarantee computer grade electrical service. Where economics justify, the Utilities Commission recommends that the Customer install an Uninterruptible Power Supply (UPS) System where computers are utilized.

When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the installation of additional equipment such as lines and transformers at the expense of the Customer.

8.08 **FLASHING LIGHTS**

All flashing signs or lights served by the Utilities Commission shall be approved with such necessary switching and control equipment as may be needed to eliminate undesirable flicker, radio and television interference to other Customers.

When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the installation of additional equipment such as lines and transformers at the expense of the Customer.

8.09 **X-RAY, BROADCASTING EQUIPMENT AND FURNACES**

Due to the very severe operating characteristics of such equipment as furnaces, x-ray, radio and television broadcasting stations, the Customer shall consult with the Utilities Commission Engineering Department before installation is made. When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the
installation of additional equipment such as lines and transformers at the expense of the Customer.

8.10 **SIGN CLEARANCES**

The Customer must adhere to the National Electrical Code and the National Electrical Safety Code, along with city or county regulations governing the installation of signs.

When the operation of such equipment is detrimental to satisfactory operation of the Utilities Commission system, the Utilities Commission shall require the installation of additional equipment such as lines and transformers at the expense of the Customer.

8.11 **TIME DELAY SWITCHES**

The Utilities Commission strongly recommends, encourages and endorses the requirements for time delay switches (electric furnace sequencers, thermostat staged contractor controls, etc.) for new residential installations of heating units with strip heating elements. The Utilities Commission has trained personnel to discuss various time delay switch options for these new installations.

The equipment supporting the Load Management Program has electronically manufactured components, and may not be compatible with the Customer's equipment, and therefore the Customer should coordinate new appliances, such as hot water heaters, heat pumps and central air conditioning units for compatibility.
SECTION 9 - STREET LIGHTING

9.01 GENERAL

The Utilities Commission shall charge and collect for public street lighting and private outdoor lighting on the basis of availability, application, character of service, monthly rates, minimum charge, tax adjustment, and energy cost adjustment. Character of service of street lighting includes lamp removal, automatically controlled energy from approximately dusk each day until approximately dawn the following day, and maintenance of the facilities. The Utilities Commission will replace all burned out lamps and will maintain its facilities during regular daytime working hours as soon as practical following notification by the Customer that such work is necessary.

9.02 CITY STREET LIGHTS

In all street lighting for which the City agrees to accept billing, the Utilities Commission shall be furnished an executed form entitled, "City of New Smyrna Beach Request for Street Lights." Any Customer requesting City street lights should channel such requests through the City Manager's office.

9.03 COUNTY STREET LIGHTS

Customers living within the Utilities Commission's electric service area, but outside the city limits of New Smyrna Beach, should contact the Volusia County Traffic Engineering Department for information on street lighting in their area.

9.04 PRIVATE OUTDOOR LIGHTING

Customers requesting a light on or adjacent to their property for security purposes should follow these guidelines:

A. Contact the Utilities Commission Customer Service Department to determine the feasibility and possible location of said light.

B. If a new pole needs to be set, see Section 9.05.

The Utilities Commission shall be permitted to enter the Customer's premises at all reasonable times for the purpose of inspecting, maintaining, installing and removing any or all of its equipment and facilities. The Customer shall reimburse the Utilities Commission for the cost of any maintenance work which is required due to vandalism.
9.05 LIMITATION OF SERVICE

Lights to be served shall be at locations that, in the opinion of the Utilities Commission, are easily and economically accessible to the Utilities Commission equipment and personnel for construction and maintenance. The location of lighting fixtures shall be by mutual agreement and shall not be so located that it creates a public nuisance. The Utilities Commission, while exercising reasonable diligence at all times to furnish service, does not guarantee continuous lighting and will not be liable for damages for any interruptions, deficiencies, or failure of service and reserves the right to interrupt service at any time for necessary repairs to lines and equipment, or for the system protection.

Street lights and poles offered by the Utilities Commission and corresponding costs are found in the Utilities Commission’s Rates, Charges and Fees which can be found on the Utilities Commission’s website at the link below:

Additional costs will be required should power to the street light(s) not be available and more facilities needed to provide power to the street light(s) requested.
SECTION 10 – FINAL ACCEPTANCE

10.01 FINAL ACCEPTANCE

A final inspection shall be performed and approved by a Utilities Commission Representative prior to final acceptance.

All transfers of real property and electric & fiber conduit to be taken over by the Utilities Commission must be deeded to the Utilities Commission prior to final acceptance by the following:

1. Bill of Sale.
2. Recorded easement(s), or proof thereof.
3. Actual cost breakdown of completed electric facility.
4. 25% Maintenance Bond.
   ➢ All systems and appurtenances accepted by the Utilities Commission are subjected to a one (1) year warranty period against all defects in material and workmanship. This warranty period shall begin upon the date of acceptance as specified by the Utilities Commission.
5. Copy of as-built drawings signed by Developer and Utilities Commission Representative.
SECTION 11 – ELECTRIC DETAILS

11.01 ELECTRIC DETAILS

ED-001 TYPICAL SERVICE DROP CLEARANCES
ED-002 TYPICAL OVERHEAD SERVICE INSTALLATIONS
ED-003 TEMPORARY CONSTRUCTION SERVICE POLE
ED-004 CONDUITS AT POWER POLE
ED-005 PERMANENT RESIDENTIAL UNDERGROUND SERVICE RISER
ED-006 UNDERGROUND SERVICE POLE
ED-007 METER ENCLOSURE INSTALLATIONS IN FLOOD PLAINS
ED-008 120/240 VOLT SINGLE PHASE – THREE WIRE METER SOCKET INSTALLATION
ED-009 120/240 VOLT SINGLE PHASE – THREE WIRE METER SOCKET INSTALLATION FROM UNDERGROUND SERVICE
ED-010 120/240 VOLT SINGLE PHASE INSTALLATION USING SINGLE METER SOCKET
ED-011 SINGLE PHASE OUTDOOR GROUP METER SOCKET INSTALLATION USING 2 TO 6 METERS INCLUSIVE
ED-012 120/240 OR 120/208 VOLT SINGLE PHASE THREE WIRE METER SOCKET INSTALLATION MEDIUM DUTY
ED-013 THREE WIRE SINGLE PHASE HEAVY DUTY INSTALLATION
ED-014 THREE PHASE FOUR WIRE METER SOCKET INSTALLATION 120/240 VOLT DELTA 120/208 WYE
ED-015 CT/PT ENCLOSURES
ED-016 CURRENT TRANSFORMER CABINET INSTALLATION FOR TWO OR MORE PARALLEL SERVICES
ED-017 TYPICAL MULTI-UNIT APARTMENT HOUSE METER CENTER
ED-018 PREWIRED METER CENTER INSTALLATION
ED-019 MAXIMUM ALLOWABLE VOLTAGE FLUCTUATIONS
ED-020 ELECTRICAL PEDESTAL
ED-021 SINGLE PHASE AND THREE PHASE ELECTRIC PULL BOX
ED-022 SINGLE PHASE FUSE ENCLOSURE PAD
ED-023 FIBER PULL BOX NEAR TRANSFORMER
ED-024 MINIMUM CLEARANCE REQUIREMENTS FOR TRANSFORMERS AND SWITCHES
ED-025 PROTECTIVE BARRIER REQUIREMENTS
ED-026 PROTECTIVE BARRIER CONSTRUCTION AND INSTALLATION
ED-027 SINGLE PHASE PAD MOUNTED TRANSFORMER SETTING
ED-028 CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD – SINGLE PHASE 100+ kVA
ED-029 THREE PHASE 75-300 kVA PAD MOUNTED TRANSFORMER SETTING
ED-030 CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD – 3∅ 75-300 kVA
ED-031 THREE PHASE 500+ kVA PAD MOUNTED TRANSFORMER SETTING
ED-032 CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD – 3∅ 500+ kVA
ED-033 PRIMARY METER INSTALLATION FROM OVERHEAD LINES
ED-034 FIBER PULL BOX ADJACENT TO ELECTRIC PULL BOX
ED-035 SWITCH GEAR BOX BASE
ED-036 STREET LIGHT HANDBOKE (PENCELL)
ED-037 SECTIONALIZING ENCLOSURE
ED-038 THREE PHASE 75-300 kVA CONDUIT BORING
ED-039 CONDUIT TRENCHING
NOTE:

1. MINIMUM CLEARANCE AT LOCATIONS ACCESSIBLE TO PEDESTRIANS: 10 FEET FOR 0–150V PHASE TO GROUND AND 12 FEET FOR 151–300V PHASE TO GROUND.

2. MINIMUM CLEARANCE FOR RESIDENTIAL DRIVEWAYS AND COMMERCIAL AREAS NOT SUBJECT TO TRUCK TRAFFIC: 12 FEET FOR 0–300V PHASE TO GROUND.

3. MINIMUM CLEARANCE FOR ROADS, STREETS, ALLEYS, NON-RESIDENTIAL DRIVEWAYS, PARKING LOTS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC: 18 FEET.

4. IN CASES WHERE DISTANCE FROM PUBLIC RIGHT OF WAY TO CUSTOMER’S WEATHERHEAD EXCEEDS 150’ A CLEARANCE POLE WILL BE SET ON CUSTOMER’S PROPERTY, AT CUSTOMER’S EXPENSE.

5. ALL SERVICES WITHIN THE CITY OF NEW SMYRNA BEACH MUST BE UNDERGROUND PER CITY ORDINANCE.
NOTE:

1. GROUNDING SHALL BE IN ACCORDANCE WITH N.E.C. REQUIREMENTS AND THE LOCAL INSPECTION AUTHORITY AND SHALL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CUSTOMER.

2. CATV OR TELEPHONE CABLE SHALL NOT BE ATTACHED TO THE SERVICE MAST.

3. METER ENCLOSURE PROVIDED AND INSTALLED BY CUSTOMER PER U.C. APPROVED METER ENCLOSURE LIST.
TEMPORARY CONSTRUCTION SERVICE POLE

NOTE:

1. WOOD POLES SHALL BE DECAY AND TERMITE RESISTANT AND RATED FOR DIRECT SOIL BURIAL. CONTACT THE UC ENGINEERING DEPARTMENT FOR APPROVAL OF EQUIVALENT METAL STRUCTURES.
2. MINIMUM POLE SIZE 4" X 4" X 16'.
3. POLE MUST BE SUFFICIENTLY RIGID AND/OR BRACED TO WITHSTAND 200 LBS. OF PULL AT THE TOP.
4. GROUNDING SHALL BE IN ACCORDANCE WITH N.E.C. REQUIREMENTS AND THE LOCAL INSPECTION AUTHORITY AND SHALL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CUSTOMER.
5. POLES WITH 100 AMP, SINGLE PHASE SERVICES MAY HAVE A MAXIMUM SERVICE DROP OF 90'. 101-200 AMP, SINGLE PHASE SERVICES MAY HAVE A MAXIMUM SERVICE DROP OF 70'. CONTACT THE UC ENGINEERING DEPARTMENT FOR ALL THREE PHASE TEMPORARY SERVICES.
6. PROVIDE IDENTIFICATION FOR ALL CONDUCTORS PER THE UCNSB RULES AND STANDARDS.
7. FOR 120/208 SINGLE PHASE, FIFTH JAW 9 O'CLOCK POSITION PREFERRED.
8. SERVICE MUST BE IN 3/4" (MINIMUM) RACEWAY, THIN WALL OR RIGID SERVICE WIRE SIZE SHALL BE 3 NO 8 (MINIMUM).
9. A WEATHERPROOF FUSE BOX WITH TYPE "S" FUSES AND GROUNDING TYPE RECEPTACLE SHALL BE USED.
10. ANCHORS MAY NOT BE REQUIRED WHEN SERVICE DOES NOT CROSS STREET AND SERVICE POLE IS WITHIN 50' OF UC POLE.
CONDUITS AT POWER POLE

POWER POLE

CUSTOMER WILL SUPPLY CONDUIT AND UC WILL EXTEND & STRAP TO POLE

ENDS OF CONDUITS TO BE TAPED

FIBER CONDUIT

12" MAX.

FINISH GRADE

ELECTRIC CONDUIT(S)

ELECTRIC CONDUIT(S)
PERMANENT RESIDENTIAL UNDERGROUND SERVICE RISER

NOTE:

1. SERVICE CABLE TO BE FURNISHED AND INSTALLED BY U.C.
2. CONTRACTOR TO FURNISH AND INSTALL METER CAN AND CONDUIT FROM METER LOCATION TO U.C. POINT OF CONNECTION.
3. GROUNDING SHALL BE IN ACCORDANCE WITH N.E.C. REQUIREMENTS AND THE LOCAL INSPECTION AUTHORITY AND SHALL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CUSTOMER.
4. CUSTOMER SHALL SUPPLY, INSTALL AND MAINTAIN A 2-1/2" HOT DIPPED GALVANIZED CONDUIT, OR SCHEDULE 40 PVC AS SHOWN. WHERE SERVICE EXCEEDS 200 AMPERES, CONDUIT SHALL BE SIZED TO ACCOMMODATE CONDUCTORS USED.
5. CUSTOMER SHALL SUPPLY AND INSTALL A 1" SCHEDULED 40 PVC CONDUIT, CAPPED AT EACH END AND TERMINATED 6" ABOVE FINISHED GRADE OR TO EXISTING 1" CONDUIT AT THE CURB.
NOTE:

1. SERVICE CABLE TO BE FURNISHED AND INSTALLED BY THE U.C.
2. CONTRACTOR TO FURNISH AND INSTALL METER CAN AND CONDUIT FROM METER LOCATION TO U.C. POINT OF CONNECTION.
3. GROUNDING SHALL BE IN ACCORDANCE WITH N.E.C. REQUIREMENTS AND THE LOCAL INSPECTION AUTHORITY AND SHALL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CUSTOMER.
4. CUSTOMER SHALL SUPPLY, INSTALL AND MAINTAIN A 2-1/2" HOT DIPPED GALVANIZED CONDUIT, OR SCHEDULE 40 PVC WITH GALVANIZED 90'S AS SHOWN. WHERE SERVICE EXCEEDS 200 AMPERES, CONDUIT SHALL BE SIZED TO ACCOMMODATE CONDUCTORS USED.
5. CUSTOMER SHALL SUPPLY, AND INSTALL A 1" SCHEDULE 40 PVC CONDUIT. CAPPED AT EACH END AND TERMINATE 6" ABOVE FINISHED GRADE OR TO EXISTING 1" CONDUIT AT THE CURB.
6. POLE TO BE MIN. 4" x 4" x 8' PRESSURE TREATED. LARGER POLE MAY BE REQUIRED TO PROVIDE NECESSARY CLEARANCE.
7. ALLOW 3' MIN. OF CONDUCTOR AT U.C. POINT OF ATTACHMENT, NEUTRAL CONDUCTOR MUST BE IDENTIFIED.
8. POLE SHALL BE LOCATED AS NEAR AS POSSIBLE TO U.C. POINT OF ATTACHMENT. LOCATE POLE TO PROVIDE PROPER CLEARANCES FROM DRIVEWAYS, CONSTRUCTION AREAS, ETC.
METER ENCLOSURE
INSTALLATIONS IN FLOOD PLAINS

NOTE:

1. PLATFORM 5' IN DEPTH IS ESTIMATED TO PROVIDE MINIMUM 4' METER ENCLOSURE CLEARANCE REQUIREMENTS.
120/240 VOLT SINGLE PHASE, THREE WIRE METER SOCKET INSTALLATION FROM UNDERGROUND SERVICE
120/208 VOLT SINGLE PHASE INSTALLATION USING SINGLE METER SOCKET
SINGLE PHASE OUTDOOR GROUP METER SOCKET INSTALLATION USING 2 TO 6 METERS INCLUSIVE

NOTE:

1. HUBS MAY BE INSTALLED IN TOP OF TROUGH IF EQUIPPED WITH WATER TIGHT CONNECTIONS.
2. CENTERLINE OF METER SHALL BE 48" – 66" FROM FINISHED GRADE OR FLOOR.
3. 150 AMPERE METER SOCKETS ARE 8" WIDE PER METER POSITION AND 10-1/2" HIGH.
120/240 OR 120/208 VOLT SINGLE PHASE THREE WIRE METER SOCKET INSTALLATION MEDIUM DUTY

NOTE:
1. FOR USE ON INSTALLATIONS USING #1 TO 2/0 CU. (4/0 AL).
2. CENTERLINE OF METER TO BE 48" – 66" ABOVE FINISHED GRADE OR FLOOR.
3. FIFTH TERMINAL IS REMOVABLE AND CAN BE REPOSITIONED.
THREE WIRE SINGLE PHASE HEAVY DUTY INSTALLATION

NOTE:
1. FOR USE ON INSTALLATIONS OF 160 TO 200 AMPERES.
2. TERMINAL SIZES NO. 1/0 TO 4/0.
3. CENTERLINE OF METER 48" – 66" ABOVE FINISHED GRADE OR FLOOR.
THREE PHASE FOUR WIRE METER SOCKET
INSTALLATION 120/240 VOLT DELTA 120/208 WYE

NOTE:
1. FOR USE ON INSTALLATIONS OF 160 TO 200 AMPERES.
2. TERMINAL SIZES NO. 1/0 TO 4/0.
3. CENTERLINE OF METER 48" - 66" ABOVE FINISHED GRADE OR FLOOR.
4. HIGH LEG MUST BE CLEARLY LABELED IN ORANGE AND ON RIGHT SIDE OF THE METER.
LOCATE METER CAN IN AN UNOBSURCTED AREA. ALLOW CLEARANCE FOR CABINET DOOR SWING.

CT ENCLOSURE DIMENSIONS

<table>
<thead>
<tr>
<th>VOLTAGE</th>
<th>MINIMUM DIMENSIONS (HxWxD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120–240 VOLT</td>
<td>24&quot; X 24&quot; X 8&quot;</td>
</tr>
<tr>
<td>208 VOLT YWY</td>
<td>36&quot; X 36&quot; X 8&quot;</td>
</tr>
<tr>
<td>480 VOLT</td>
<td>36&quot; X 36&quot; X 8&quot;</td>
</tr>
</tbody>
</table>

NOTE:

1. CT ENCLOSURE SHALL BE MANUFACTURED OF ALUMINUM OR STAINLESS STEEL AND BE WEATHER TIGHT AND LOCKABLE.
2. SEE TABLE FOR SIZING.
3. NUMBER OF SETS OR CONDUCTOR SIZE MAY REQUIRE A LARGER CAN.
4. U.C. WILL SUPPLY CT'S AND METER CAN FOR INSTALLATION BY CONTRACTORS ELECTRICIAN.
5. H1 OF CT TOWARD SOURCE
6. ALL CONTROL WIRING BY U.C.
7. GROUNDING SHALL BE IN ACCORDANCE WITH THE N.E.C., U.C. RULES AND STANDARDS AND LOCAL INSPECTION AUTHORITY AND SHALL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CUSTOMER.
CURRENT TRANSFORMER CABINET INSTALLATION
FOR TWO OR MORE PARALLEL SERVICES

NOTE:
1. UC WILL PROVIDE METER SOCKETS AND CT'S.
2. CT CABINET MUST BE ALUMINUM OR STAINLESS STEEL WITH LOCKING PROVISIONS.
3. COORDINATE INSTALLATION WITH UC ENGINEERING AND T&D DEPARTMENTS.
NOTE:
1. INDIVIDUAL SOCKET FACE, ONE FOR EACH METER OPENING.
2. COMMON TRIP LOAD BREAKER FOR EACH APARTMENT. BREAKERS MUST BE ON THE LOAD OF METER SOCKET.
3. FIFTH TERMINAL TO BE PROVIDED WHEN USED ON 120/208 VOLT SINGLE PHASE, AND IS ACCEPTABLE IN THE 9 O'CLOCK POSITION AS SHOWN.
4. IDENTIFICATION TAG MUST BE PLACED ON BOTH METER AND BREAKER FACE PLATE AS WELL AS INSIDE THE METER SOCKET ENCLOSURE.
5. METER CENTER USED MUST BE APPROVED BY THE ENGINEERING DEPARTMENT.
6. DIMENSIONS ARE FOR METER LOCATIONS ONLY.
NOTE:

1. METER CENTER USED MUST BE APPROVED BY THE UC ENGINEERING DEPARTMENT.
2. DIMENSIONS ARE FOR METER LOCATIONS ONLY.
3. FIFTH TERMINAL POSITION FOR 120/208 VOLT SINGLE PHASE SERVICE AND IS ACCEPTABLE IN THE 9 O'CLOCK POSITION.
4. IDENTIFICATION TAG MUST BE PLACED ON BOTH METER AND BREAKER FACE PLATE AS WELL AS INSIDE THE METER SOCKET ENCLOSURE.

PREWIRED METER CENTER INSTALLATION

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL.

PREWIRED METER CENTER INSTALLATION
MAXIMUM ALLOWABLE VOLTAGE FLUCTUATIONS

NOTE:

1. THE CUSTOMER SHALL NOT BE ALLOWED TO IMPOSE VOLTAGE FLUCTUATIONS ABOVE FIVE PERCENT ON THE U.C. SYSTEM EXCEPT UNDER EXTREME CIRCUMSTANCES. FOR APPROVAL CONTACT THE UTILITIES COMMISSION'S T&D DEPARTMENT.
42"x 42" 1Φ PAD

SINGLE PHASE FUSE ENCLOSURE PAD

NTS

UTILITY COMMISSION
CITY OF NEW SMYRNA BEACH, FL.

SINGLE PHASE
FUSE ENCLOSURE PAD

OWN: J. SCHWADRON
SCALE: NONE
REV: 1
FILE: ED-022

CKD: M. RODRIGUEZ
DATE: 6/2010
SHEET 1 OF 1

APP: J. WHITE
FILE: ED-022
NOTE:

1. PADMOUNTED SWITCHES REQUIRE 8 FEET MINIMUM CLEARANCE IN THE FRONT AND THE REAR.
PROTECTIVE BARRIER REQUIREMENTS

NOTE:

1. PROTECTIVE BOLLARDS WILL BE REQUIRED IF VEHICULAR TRAFFIC IS WITHIN 3- FEET OF FACILITY.
NOTE:

1. BOLLARDS SHALL BE REQUIRED WHERE VEHICULAR TRAFFIC IS WITHIN 3' OF TRANSFORMER.
2. BOLLARD SHALL BE MADE OF 4" GALVANIZED STEEL SCHEDULE 40 STANDARD PIPE. PERMANENT BOLLARDS SHALL BE FILLED WITH CONCRETE AS SHOWN IN THE DETAIL. REMOVABLE BOLLARDS SHALL REMAIN HOLLOW AND BE CAPPED WITH PIPE CAP.
3. PERMANENT AND REMOVABLE STYLE BOLLARDS ARE TO BE USED WHERE REQUIRED.
4. BOLLARDS ARE TO BE PAINTED SAFETY YELLOW.
5. REMOVABLE BOLLARDS MUST BE PRE-APPROVED BY THE UC BEFORE PURCHASING.

PROTECTIVE BARRIER
CONSTRUCTION AND INSTALLATION

ED-026
NOTES:
1. TRANSFORMER FOUNDATION IS TO BE PLACED SO THAT THE BACK EDGE IS EVEN WITH THE EASEMENT LINE.
2. TRANSFORMER FOUNDATION TO BE PLACED ON A LAYER OF COMPACTED GRANULAR BACKFILL MATERIAL.
3. ALL CONDUITS ARE TO BE STUBBED UP IN THE MIDDLE AT THE FORWARD MOST PORTION OF THE ACCESS PORT.
4. ALL SERVICE ELBOWS MUST BE STUBBED OUT PRIOR TO SETTING THE TRANSFORMER.
5. THE GROUND SHALL BE LEVELLED AND THOROUGHLY COMPACTED BEFORE PAD IS INSTALLED.
6. IF THE CUSTOMER PLANS TO RUN A NUMBER OF CONDUCTORS BEYOND THE MAXIMUM ALLOWED, A JUNCTION BOX MAY BE REQUIRED FOR TERMINATION OF CUSTOMER’S CONDUCTORS.
7. FILLED SERVICE CONDUITS SHALL BE TO THE REAR OF THE PAD WITH SPARE SERVICE CONDUITS TO THE FRONT.
8. CONTACT THE UCNSB REPRESENTATIVE FOR DETERMINATION OF NEED FOR TRAFFIC BARRIERS. EXACT ORIENTATION OF THE TRANSFORMER IN THE FIELD MUST BE APPROVED BY THE UTILITIES COMMISSION.
9. IN AREAS WHERE TRANSFORMERS ARE TO BE ELEVATED ABOVE FINISHED GRADE, UCNSB MUST BE CONTACTED TO COMPLY WITH SPECIAL RULES.
10. MAXIMUM SIZE OF CONDUCTORS TO BE 750 KCM AL OR 600 KCM CU OR LESS.
11. 8 SERVICES MAXIMUM IN TRANSFORMER.
12. CONDUCTORS TO BE MARKED WITHIN 12” OF CONDUIT WITH PHYSICAL ADDRESS AND COLORED TAPE.

SINGLE PHASE PAD MOUNTED TRANSFORMER SETTING
NTS UCNSB 8/10
100 kVA & LARGER 1Φ TRANSFORMER PAD

REBAR LAYOUT

NOTES:
1. CONCRETE 3500 PSI @ 28 DAYS.
2. DEFORMED BARS - ASTM A-615, GRADE 60.
3. TOP SURFACE SHALL BE MEDIUM BRUSH FINISHED.
4. 3/4" CHAMFER ALL EXPOSED EDGES, INCLUDING OPENINGS.

CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD - SINGLE PHASE 100+ kVA

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL.

CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD
SINGLE PHASE 100+ kVA

OWN. J. SCHWADRON   SCALE: NONE   REV. 1   SHEET 1 OF 1
CKD. M. RODRIGUEZ   DATE: 8/2010
APP. J. WHITE   FILE: ED-028
NOTE:
1. TRANSFORMER FOUNDATION IS TO BE PLACED SO THAT THE BACK EDGE IS EVEN WITH THE EASEMENT OR PROPERTY LINE.
2. TRANSFORMER FOUNDATION TO BE PLACED ON A LAYER OF COMPACTED GRANULAR BACKFILL MATERIAL.
3. PRIMARY CONDUITS SHALL BE PLACED TO THE FAR LEFT AND FRONT OF THE OPENING. SECONDARY SHALL BE PLACED TO THE FAR RIGHT AND FRONT OF THE OPENING.
4. ALL SERVICE ELBOWS MUST BE STUBBED OUT PRIOR TO SETTING THE TRANSFORMER.
5. THE GROUND SHALL BE LEVELED AND THOROUGHLY COMPACTED BEFORE PAD IS INSTALLED.
6. IF THE CUSTOMER PLANS TO RUN A NUMBER OF CONDUCTORS BEYOND THE MAXIMUM ALLOWED, A JUNCTION BOX MAY BE REQUIRED FOR TERMINATION OF CUSTOMER'S CONDUCTORS.
7. LARGER SECONDARY CABLE SHALL BE TO THE REAR OF THE PAD WITH SPARE CONDUIT TO THE FRONT.
8. CONTACT THE UCNSB REPRESENTATIVE FOR DETERMINATION OF NEED FOR TRAFFIC BARRIERS. EXACT ORIENTATION OF THE TRANSFORMER IN THE FIELD MUST BE APPROVED BY THE UTILITIES COMMISSION.
9. IN AREAS WHERE TRANSFORMERS ARE TO BE ELEVATED ABOVE FINISHED GRADE, UCNSB MUST BE CONTACTED TO COMPLY WITH SPECIAL RULES.
10. MAXIMUM SIZE OF CONDUCTORS TO BE 750 KCM AL OR 600 KCM CU OR LESS.
11. MAXIMUM NUMBER OF 4" CONDUITS IS 8 FOR 75–300 KVA.
12. CONDUCTORS TO BE MARKED WITHIN 12" OF CONDUIT WITH PHYSICAL ADDRESS AND COLORED TAPE.
75-300 kVA 3φ TRANSFORMER PAD

NOTE:
1. CONCRETE 3500 PSI @ 28 DAYS.
2. DEFORMED BARS – ASTM A-615, GRADE 60.
3. TOP SURFACE SHALL BE MEDIUM BRUSH FINISHED.
4. 3/4" CHAMFER ALL EXPOSED EDGES, INCLUDING OPENINGS.

CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD - 3φ 75-300 kVA

UTITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL.
CUSTOMER INSTALLED CONCRETE TRANSFORMER PAD 3 PHASE 75–300 kVA

OWN: J. SCHWADRON
SCALE: NONE
REV. 1 SHEET 1 OF 1
CKD. M. RODRIGUEZ DATE: 8/2010
APP. J. WHITE FILE: ED-030
ED-030
NOTE:

1. TRANSFORMER FOUNDATION IS TO BE PLACED SO THAT THE BACK EDGE IS EVEN WITH THE EASEMENT OR PROPERTY LINE.
2. TRANSFORMER FOUNDATION TO BE PLACED ON A LAYER OF COMPACTED GRANULAR BACKFILL MATERIAL.
3. PRIMARY CONDUITS SHALL BE PLACED TO THE FAR LEFT AND FRONT OF THE OPENING. SECONDARY SHALL BE PLACED TO THE FAR RIGHT AND FRONT OF THE OPENING.
4. ALL SERVICE ELBOWS MUST BE STUBBED OUT PRIOR TO SETTING THE TRANSFORMER.
5. THE GROUND SHALL BE LEVELED AND THOROUGHLY COMPACTED BEFORE PAD IS INSTALLED.
6. IF THE CUSTOMER PLANS TO RUN A NUMBER OF CONDUCTORS BEYOND THE MAX. ALLOWED, A JUNCTION BOX MAY BE REQUIRED FOR TERMINATION OF CUSTOMER'S CONDUCTORS.
7. LARGER SECONDARY CABLE SHALL BE TO THE REAR OF THE PAD WITH SPARE CONDUIT TO THE FRONT.
8. CONTACT THE UCNSB REPRESENTATIVE FOR DETERMINATION OF NEED FOR TRAFFIC BARRIERS. EXACT ORIENTATION OF THE TRANSFORMER IN THE FIELD MUST BE APPROVED BY THE UTILITIES COMMISSION.
9. IN AREAS WHERE TRANSFORMERS ARE TO BE ELEVATED ABOVE FINISHED GRADE, UCNSB MUST BE CONTACTED TO COMPLY WITH SPECIAL RULES.
10. MAXIMUM SIZE OF CONDUCTORS TO BE 750 KCM AL OR 600 KCM CU OR LESS.
11. MAXIMUM NUMBER OF 4" CONDUITS IS 12 FOR 500 KVA AND LARGER.
12. CONDUCTORS TO BE MARKED WITHIN 12" OF CONDUIT WITH PHYSICAL ADDRESS AND COLORED TAPE.
NOTE:
1. CONCRETE 3500 PSI @ 28 DAYS.
2. DEFORMED BARS — ASTM A-615, GRADE 60.
3. TOP SURFACE SHALL BE MEDIUM BRUSH FINISHED.
4. 3/4" CHAMFER ALL EXPOSED EDGES, INCLUDING OPENINGS.
NOTE:

1. CLOSE COORDINATION WILL BE REQUIRED WITH THE UC ENGINEERING AND T & D DEPARTMENTS.
FIBER PULL BOX ADJACENT TO ELECTRIC PULL BOX

PROPOSED FUTURE FIBER PULL BOX

TOP OF CONDUIT TO BE TAPED AND 12" BELOW GRADE

TAPE

24" RADIUS BENDS

2" FIBER CONDUITS

SIDEVIEW
THREE PHASE 75–300 kVA CONDUIT BORING

(1)–2" FIBER CONDUIT

(2)–4" ELECTRIC CONDUITS

60" MIN

PAVEMENT

NTS

UCNSB 8/10

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FL.

THREE PHASE 75–300 kVA CONDUIT BORING

OWN. J. SCHWADRON
SCALE: NTS

CKD. M. RODRIGUEZ
DATE: 8/2010

APP. J. WHITE
FILE: ED-038

ED-038
NOTES:

1. MINIMUM SEPARATION OF 2" BETWEEN CONDUITS CARRYING CONDUCTORS OF THE SAME VOLTAGE. MINIMUM SEPARATION OF 6" BETWEEN CONDUITS CARRYING CONDUCTORS OF DIFFERENT VOLTAGES.
2. SELECTED EARTH BACKFILL. NO LARGE ROCKS, OR OTHER HEAVY OBJECTS ALLOWED.
3. SCHEDULE 40 ELECTRICAL GRADE PVC CONDUIT OR HDPE SDR 13.5.