



# *Metering Installation Guide*

## Table of Contents

### **Introduction**

### **New Services**

#### **1.0 General**

- 1.1 Services per Structure
- 1.2 Meter Connections
- 1.3 Inspections
- 1.4 Meter Equipment Locations
- 1.5 Meter Equipment
- 1.6 Grounding of Meter & Service Equipment
- 1.7 Grounding Terminology

#### **2.0 Temporary Service: 3-Wire (120/240V or 120V/208V)**

- 2.1 Overhead
- 2.2 Underground

#### **3.0 Single Meter Socket Installation: 3-Wire (120/240V or 120V/208V)**

- 3.1 Typical Overhead Service
- 3.2 Typical Underground Service
- 3.3 3-Wire Self Contained Socket (225 Amps or less)
  - i Overhead
  - ii Underground
- 3.4 3-Wire Self Contained Socket (225 Amps – 400 Amps)
  - i Overhead
  - ii Underground
- 3.5 3-Wire CT Metering (Greater than 400 Amps)

#### **4.0 Multi-Meter Socket Installation:**

- 4.1 External mounted Multi-Meter Centers
- 4.2 Interior Meter Centers

#### **5.0 Special Applications:**

- 5.1 Residential Renewable Generation
- 5.2 Generator Interface to Meter Socket Switch

## INTRODUCTION

Walton Electric Membership Corporation (hereinafter referred to as “Walton EMC” and/or “Walton”) provides safe, economical, and reliable service to its Members. It is the policy of Walton EMC to serve all its customers in an orderly manner and assist in securing a more beneficial use of electricity. This guide contains requirements that are based on many years of experience developed to meet system safety and efficiency needs while offering reasonable convenience to Members. Since technology and customer needs change, the information in this book is subject to change without notice. An electronic version of this guide is available on-line at <https://www.waltonemc.com>. Uniform enforcement of these standards throughout the Company will expedite service connections and treat each of our customers equally and fairly. Therefore, our employees are instructed and obligated to require adherence to these standards and procedures.

This "Walton EMC Metering Installation Guide" is a valuable timesaving publication conveying the necessary requirements for single phase residential and small commercial customers' wiring intending to be connected to Walton's distribution system. It also provides for the safety and reliability of our customers and safe working conditions for our personnel. This guide is not intended as a design specification nor as an instruction manual.

New, rewired, altered, or repaired wiring installations intended for connection to Walton's distribution system shall comply with the rules of Walton, the *National Electrical Code*®, and any other codes or regulations in effect in the area served. Walton does not assume the function of inspecting customers' wiring for adequacy, safety, or compliance with the electrical codes. Such responsibility remains with the customer and inspectors. It is impossible, however, to cover all circumstances that may be encountered in providing electric service to our customers. It is necessary that common sense and good engineering practices be used where specific situations are not addressed by this guide.

## **NEW SERVICES**

Application for service or new development requests (a new service, a temporary service or a service upgrade) is to be made by the customer by contacting Customer Service :

(770) 267-2505

or

[www.waltonemc.com](http://www.waltonemc.com)

Providing Walton with as much notice as possible will greatly enhance our ability to meet your service needs.

### **Process of new construction**

The following processes begin as soon as Walton receives a service request:

- Residential services needing to be installed will be routed to our service department whereas development projects are assigned to a Walton representative to design and coordinate electric plans of development.
- Questions about design, completion of the necessary agreements (electric load information, site plans, electrical riser diagram, etc.) and customer responsibilities will be determined by the Walton representative and the customer.
- Walton EMC will construct electric service facilities and install meter(s) only upon receipt of copies of any required electrical inspections confirming compliance with applicable codes.

**Note:** \*\* If service is NOT to be connected in the name of the individual or company initiating the work request, the Customer who will ultimately be responsible for the electric billing must contact Walton EMC at (770) 267-2505 to give authorization for the meter to be set in their name.

## GENERAL

### **1.1 Services per Structure**

Walton shall connect only one service drop or service lateral to a building or structure for each class of service, except as permitted by the National Electrical Code. All services shall be metered. For the purpose of this rule, a communication tower shall be treated as a single structure.

### **1.2 Meter Connections**

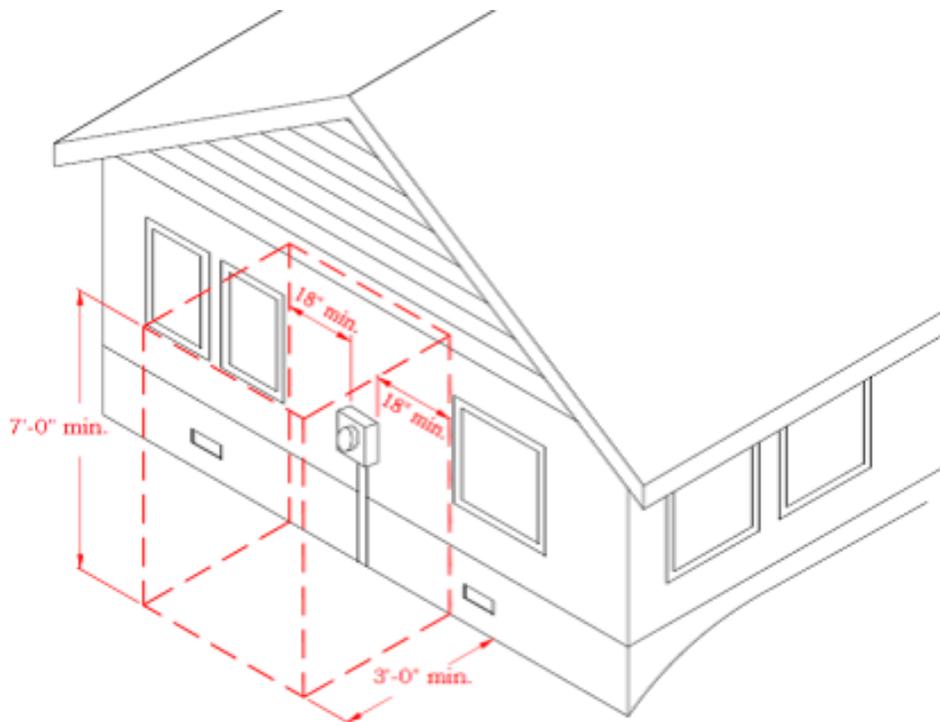
Final connections at the service point shall be made only by Walton qualified employees. Customer owned devices shall not be installed between the service point and customer's meter socket. The electric service and metering equipment are designed to serve the Customer 's load as it exists when connected to Walton's distribution system. Walton will not accept more than one conductor under one pressure device.

### **1.3 Inspections**

- A. In areas where electrical inspection is provided, the Public Service Commission requires that all wiring and equipment in or upon the premises of the customer to the point of the service connection shall have the approval of an inspector from the constituted authority (cities and counties, for example) prior to connecting the customer service to the Walton EMC system. In addition to the local approval inspection, the Service Regulations of Walton EMC shall be met.
- B. For Customers that may be exempt from the local inspecting authority, such as some federal, state, and local governmental agencies or self-inspecting entities, or in areas where an electrical inspector does not exist; a letter should be obtained from an individual or entity qualified to make the statement that all wiring has been completed according to the National Electrical Code (NEC) before service is connected.
- C. Regardless of whether a city or county employs inspectors, Walton EMC, through a qualified employee, has the right to make the final determination about connecting the service. Walton EMC shall not connect any service where an unsafe condition is observed or Walton EMC specifications have not been met. The customer shall be notified of the unsafe condition or requirement and service will be provided when corrected by the Customer.

## 1.4 Meter Equipment Locations

- A. Metering equipment shall be located outdoors at ground floor level readily accessible to Walton EMC employees.
- B. Meters shall be located so the center of the meter shall not exceed 5 feet 6 inches above final grade level and not less than 3 feet 6 inches above final grade level.
- C. Safety dictates location of metering equipment to be located such that Walton EMC personnel are provided level, unobstructed working space. This working space shall extend a minimum distance of 3 feet in front and 18 inches to either side of the equipment, and a height of 7 feet from final grade level.



## 1.5 Meter Equipment

- A. Customer purchased equipment shall be certified by a US Department of Labor Nationally Recognized Testing Laboratory (NRTL). The label, symbol or other identifying mark used by the testing laboratory shall be affixed to the unit.
- B. All meter bases shall be ringless type.
- C. Meter base shall be sealable.
- D. For underground services, meter bases shall have a minimum raceway of 3" for Walton EMC service conductors

- E. When single phase 120/208V WYE service is supplied, the customer must supply and install a grounded fifth terminal meter jaw in meter socket.
- F. Metering center and conduit straps shall be securely fastened to the building using appropriate hardware for the construction type.

## 1.6 Grounding of Meter & Service Equipment

The Customer shall install a grounding electrode system and bond service equipment in accordance with the National Electrical Code (NEC) and local codes before requesting Walton to energize the service. Failure to comply with the appropriate codes may result in personal injury or damage to property.

### A. Bonding Utility-Side Metering Equipment:

- (a) Non-current carrying metal parts of metering equipment shall be bonded to the service grounded (neutral) conductor in a manner that establishes an effective ground-fault current path.
- (b) In all cases where the metering equipment is on the Utility-side of the service disconnect, the metal enclosure shall be bonded to the grounded (neutral) conductor within the enclosure.
- (c) No additional equipment grounding conductors (bond wires) or bonding jumpers are required, nor allowed to effectively bond the metal meter enclosure to adjacent service entrance equipment.
- (d) **Walton** personnel are responsible for bonding current transformer cabinets and transformer rated sockets.

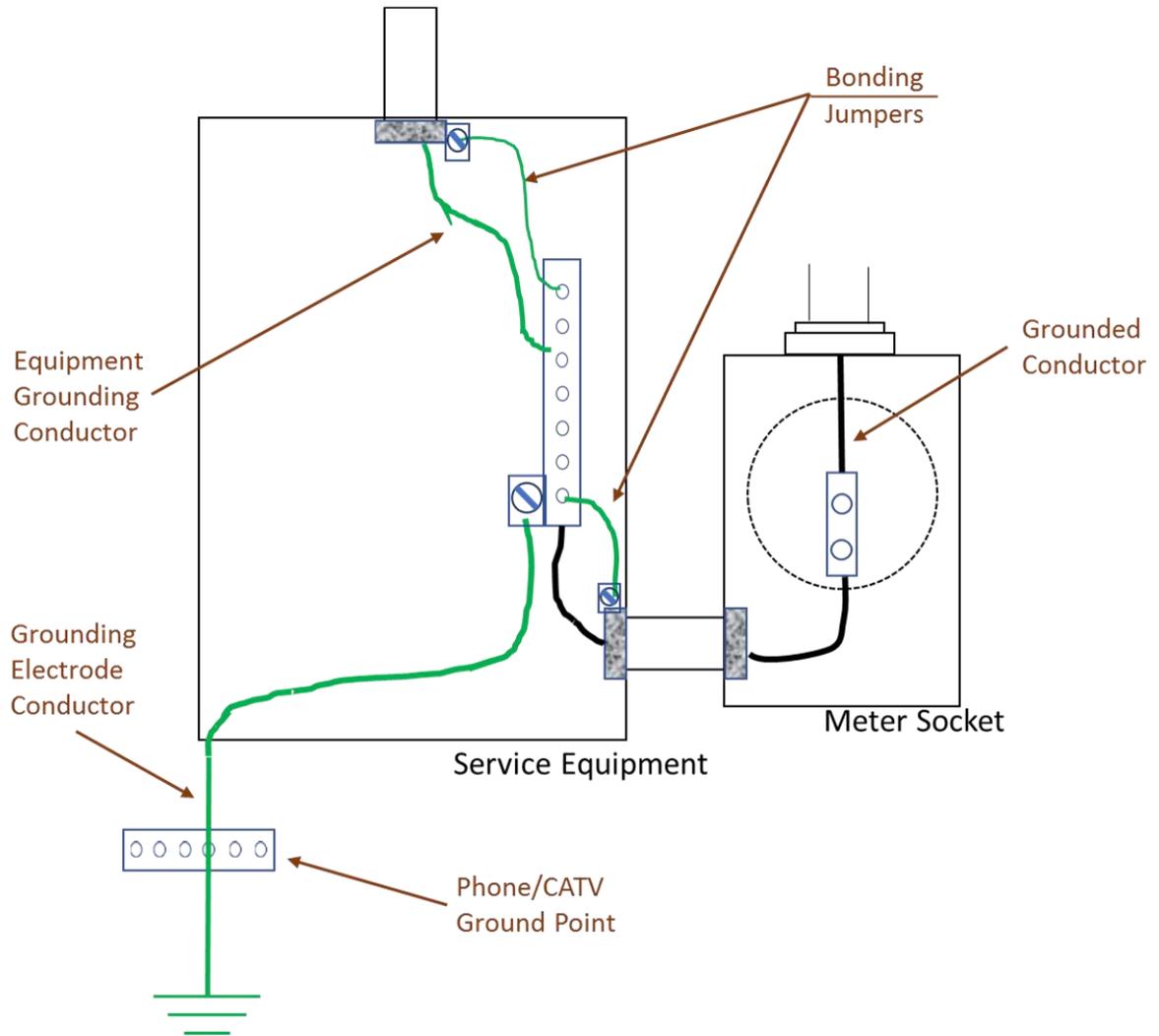
### B. Grounding of Meter Equipment:

- (a) To conform to NEC grounding requirements, Walton will allow a single grounding electrode conductor to be terminated in a self-contained combination meter socket / service equipment (disconnect panel) where a factory installed grounding connector is attached to the neutral bus.
- (b) The grounding electrode conductor shall be routed directly to the grounding electrode without passing through any other enclosure.
- (c) Meter enclosures shall not be used as a junction point for bonding together different components of the Customer's grounding electrode system.

C. External Ground Wires Attached to Meter Equipment:

- (a) Metering equipment shall not be used as a point of grounding by the Customer or other utilities. Ground wires for cable TV, antennas, phone equipment, etc., shall not be connected to metering sockets, metering cabinets, and metal conduits housing meter control cable.
- (b) Any ground wire, or grounding device, as described in Section 1.6.C(a) that interferes with Walton personnel accessing the meter or that creates a hazard for Walton personnel, is subject to removal.

## 1.7 Grounding Terminology

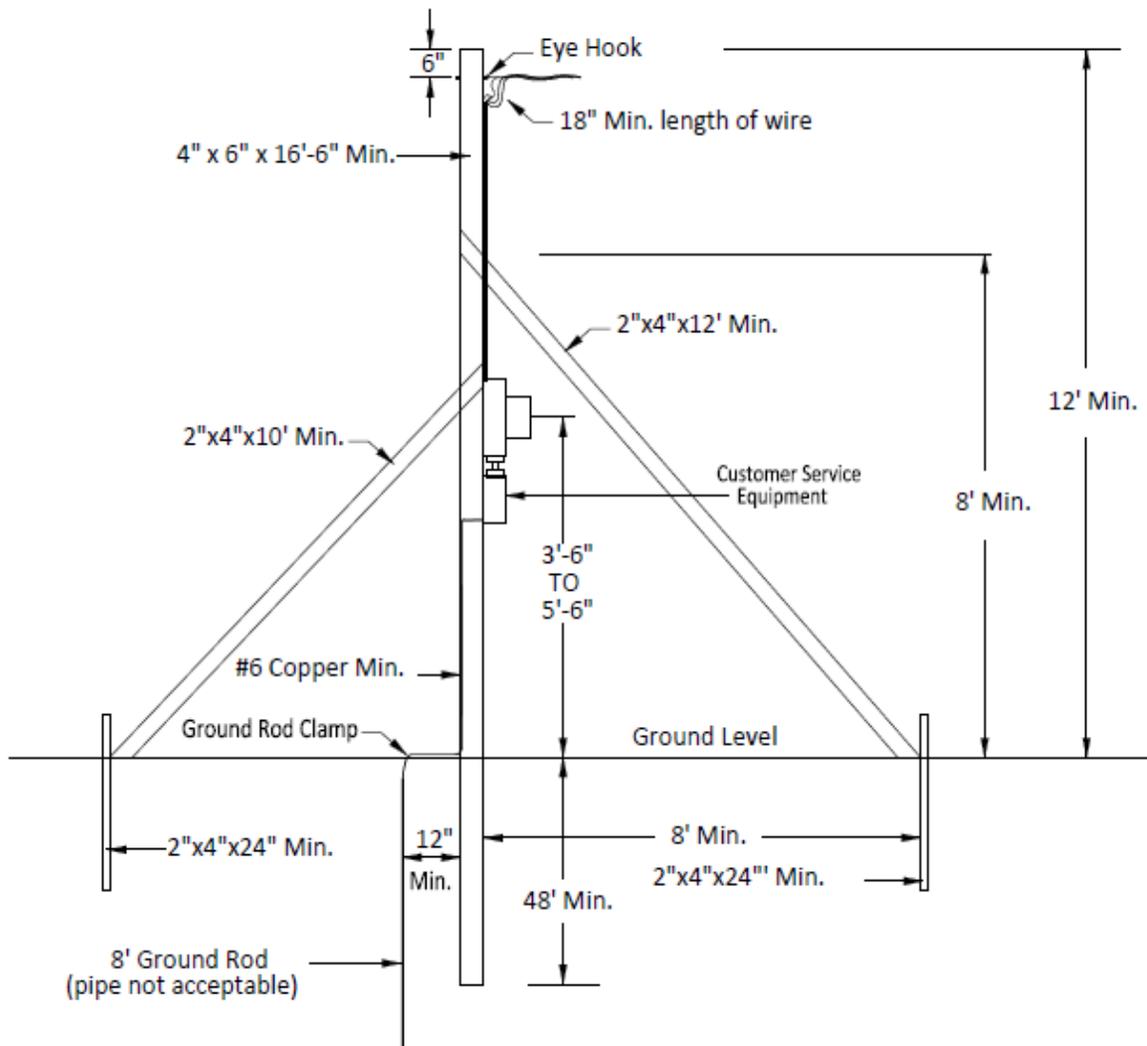


**2.0 TEMPORARY SERVICE:**

**3-Wire (120V/240V or 120V/208V)**

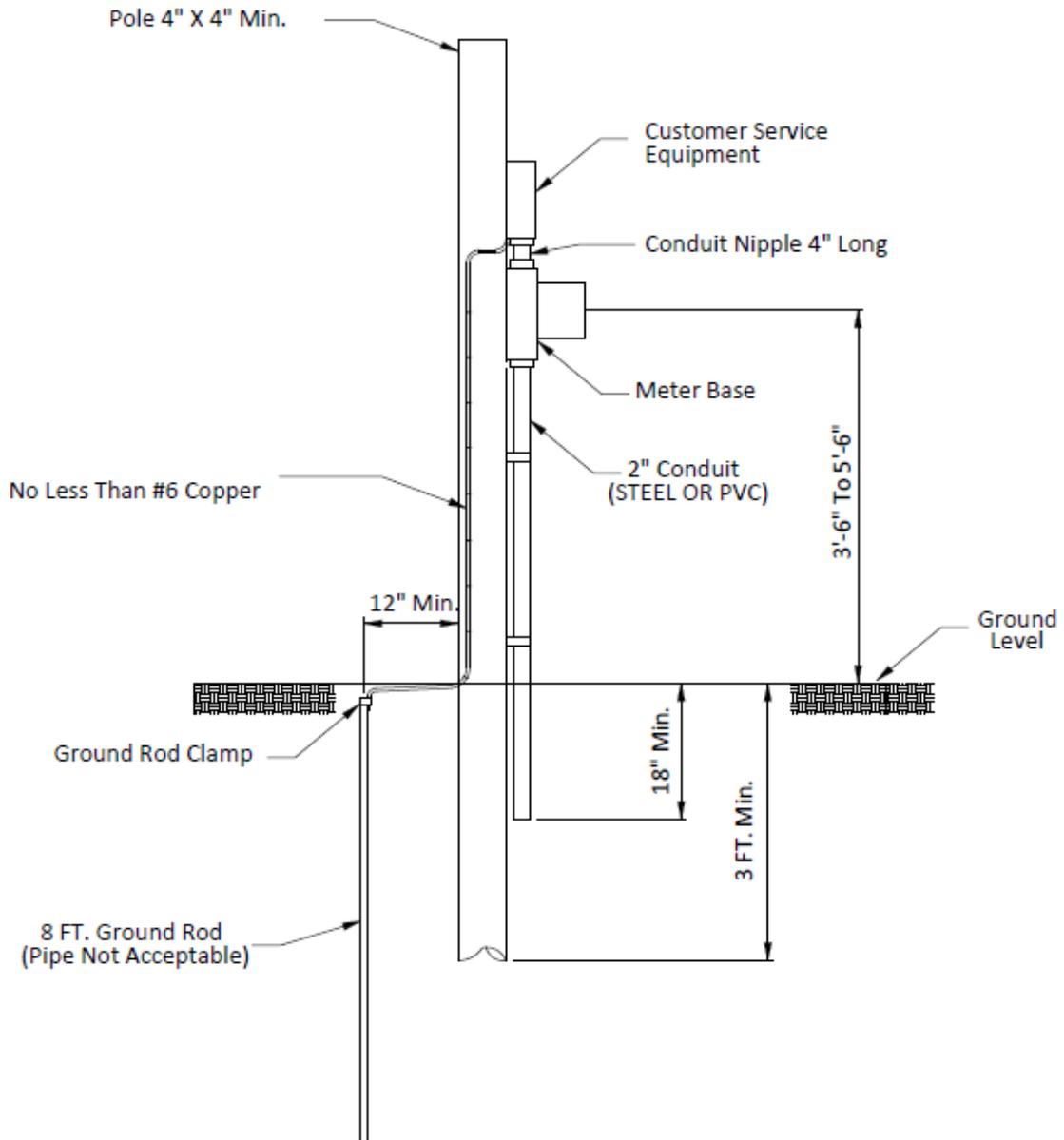
2.1 Overhead

- A. A minimum 4" x 6" post or 6" pole, with a minimum of 6" diameter at top for Walton EMC attachment, shall be installed by the customer. Depth shall be no less than 48" with a minimum of 12' attachment height above grade (16' above grade if subject to truck traffic).
- B. Treated wood rated for in ground use shall be used for pole, braces and stakes.
- C. Conductors, conduit, conduit straps, locking nut bushings, connectors and miscellaneous mounting hardware shall be furnished and installed by customer.
- D. Meter bases shall be marked with address number using enamel paint in a contrasting color internally and externally.



## 2.2 Underground

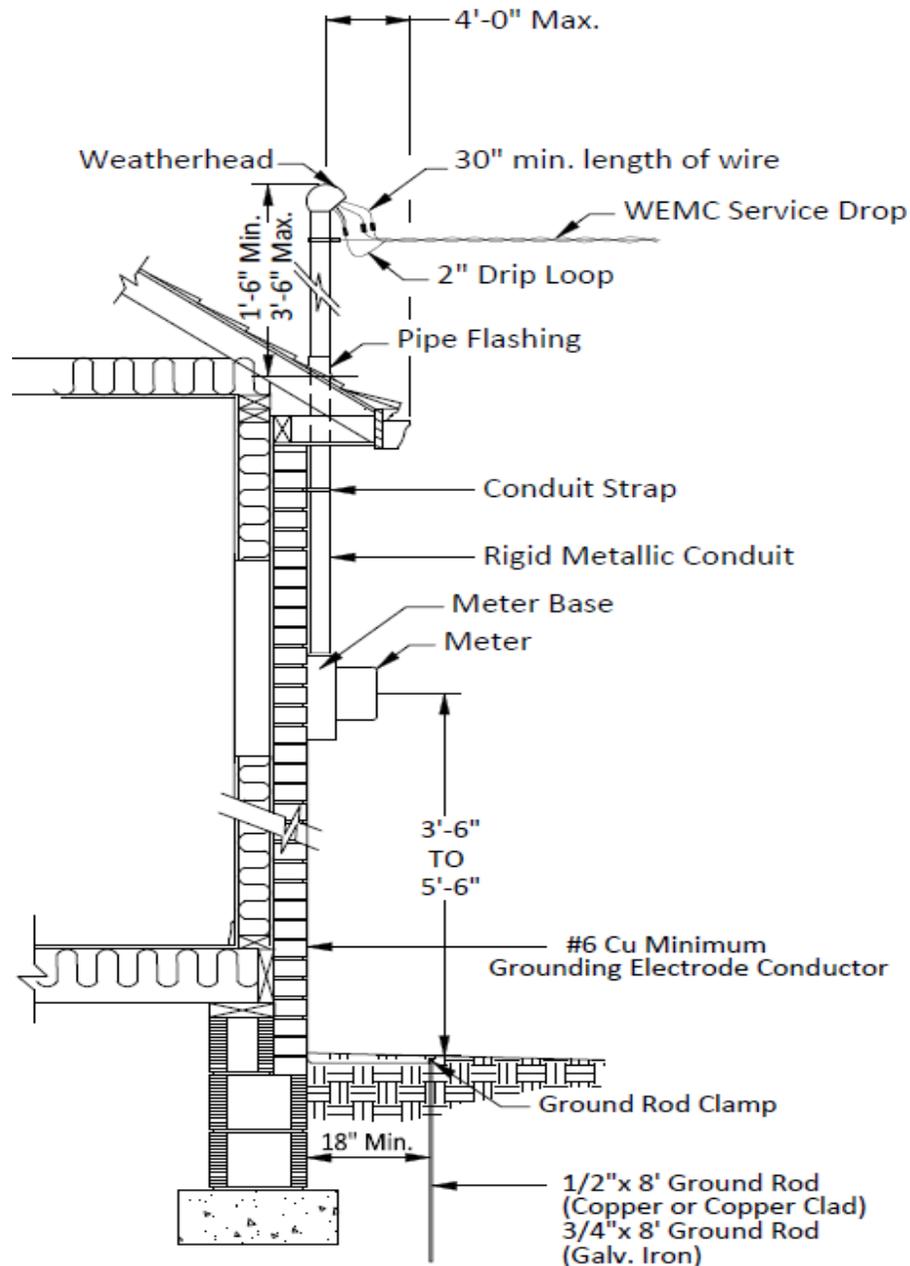
- A. A minimum 4" x 4" post or pole shall be installed by the customer.
- B. Conduit shall be 2" minimum trade size furnished and installed by customer.
- C. Conductors, conduit, conduit straps, locking nut bushings, connectors and miscellaneous mounting hardware shall be furnished and installed by customer.
- D. Meter bases shall be marked with address number using enamel paint in a contrasting color internally and externally.
- E. All underground service connections shall be made by Walton EMC.



### 3.0 SINGLE METER INSTALLATION, 3-Wire (120V/240V or 120V/208V)

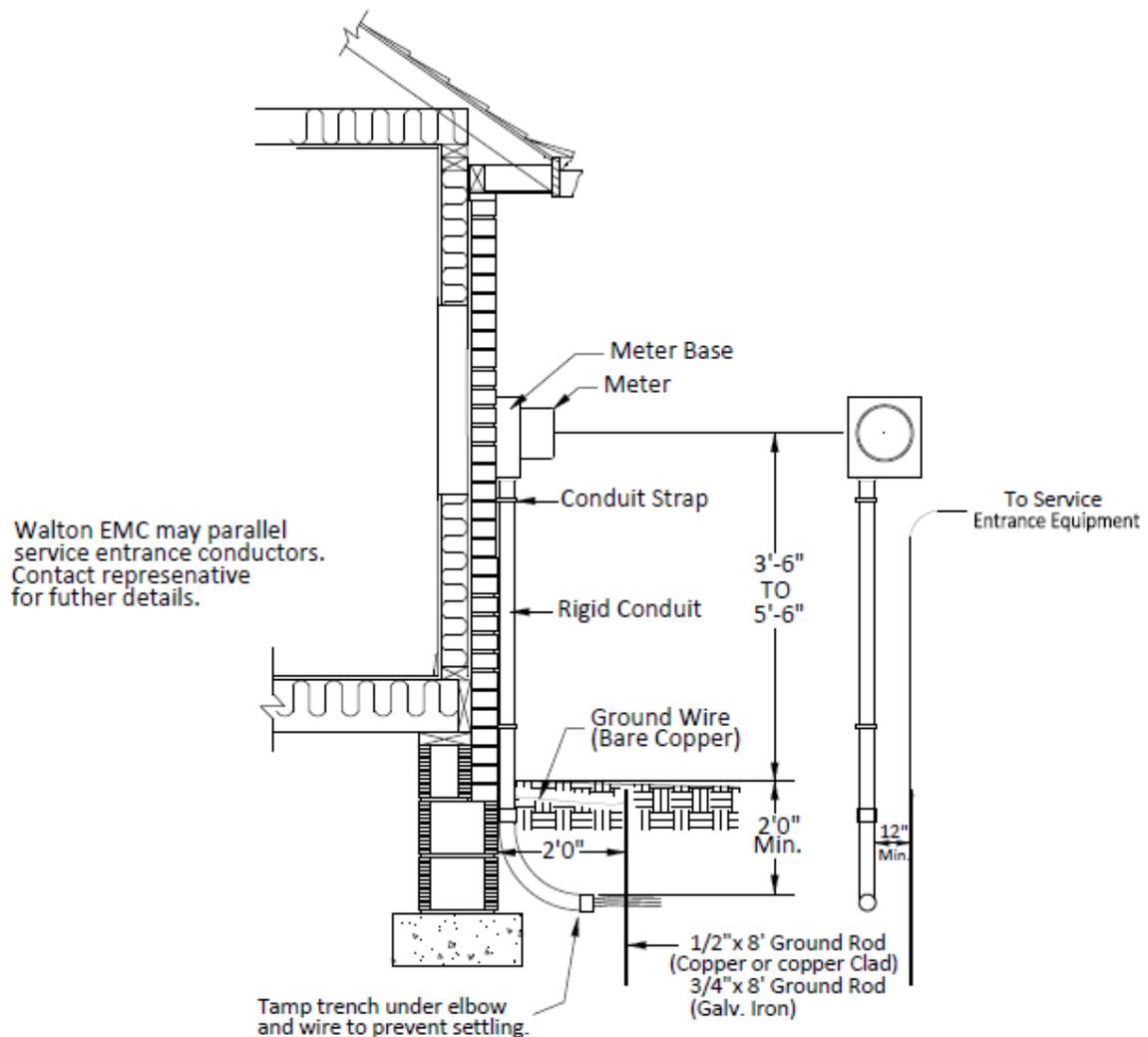
#### 3.1 Typical Overhead Service

- A. Service Mast extending beyond roof shall be a minimum of 2" rigid metal conduit furnished and installed by customer.
- B. Walton EMC service conductor shall be attached to mast by Walton EMC.
- C. Customer service conductor shall have minimum 30" extending beyond weather head for Walton EMC connection.
- D. Conductors, conduit, conduit straps, locking nut bushings, connectors and miscellaneous mounting hardware shall be furnished and installed by customer.



### 3.2 Typical Underground Service

1. Conduit, rigid or PVC, shall be furnished and installed by customer to accommodate Walton service entrance conductors.
  - a. For 225A or less Installations: 2½" minimum diameter conduit
  - b. For 225A – 400A Installations: 4" minimum diameter conduit
2. Standard radius ninety-degree elbows or standard radius forty-five degree elbows shall be used below grade to minimum 24" depth.
3. Grounding electrode conductor shall not be terminated in both service equipment and meter socket.

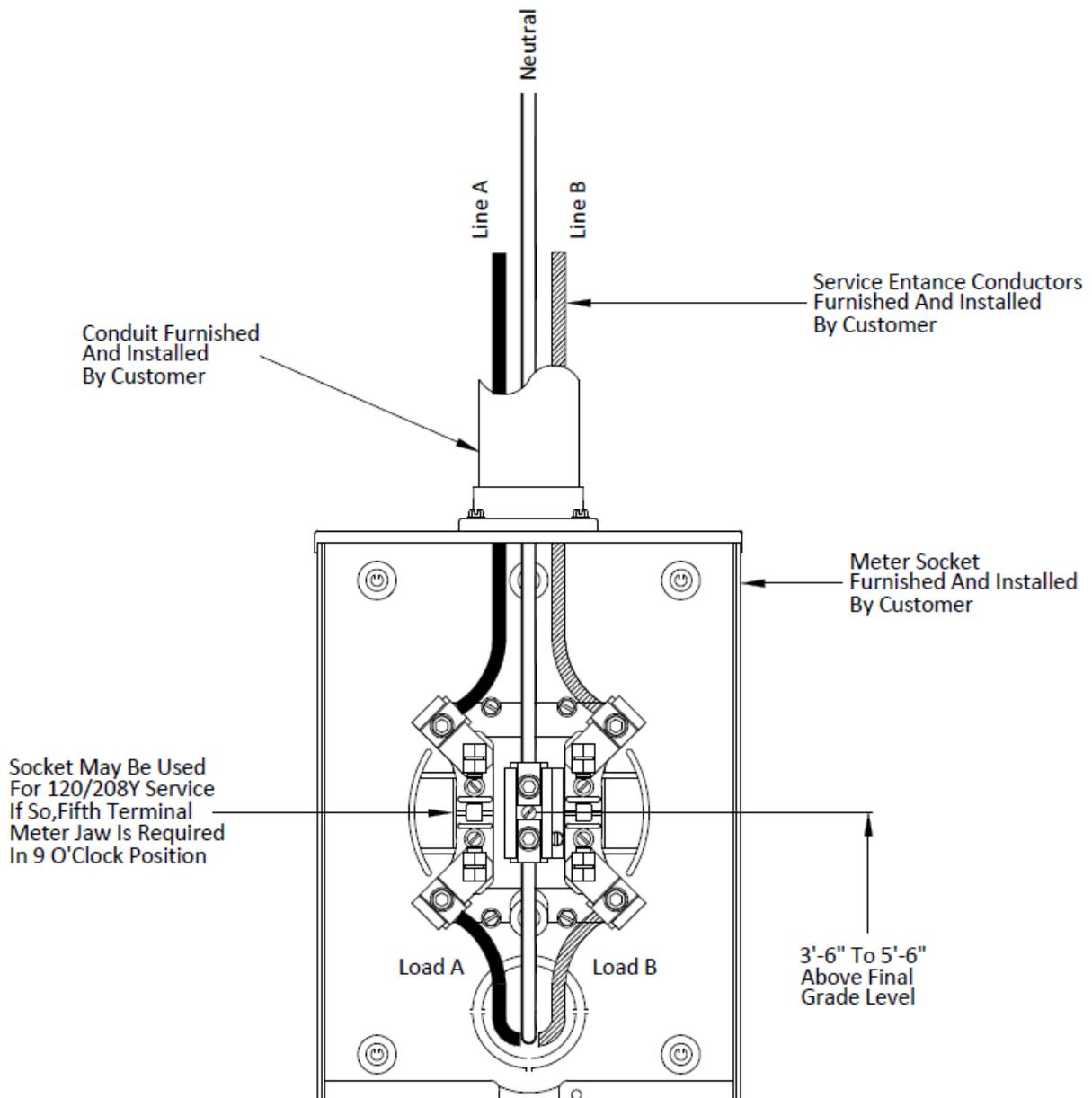


**NOTE:**  
Local code authorities may have requirements in addition to those given here.  
Most Local code authorities require external disconnects.

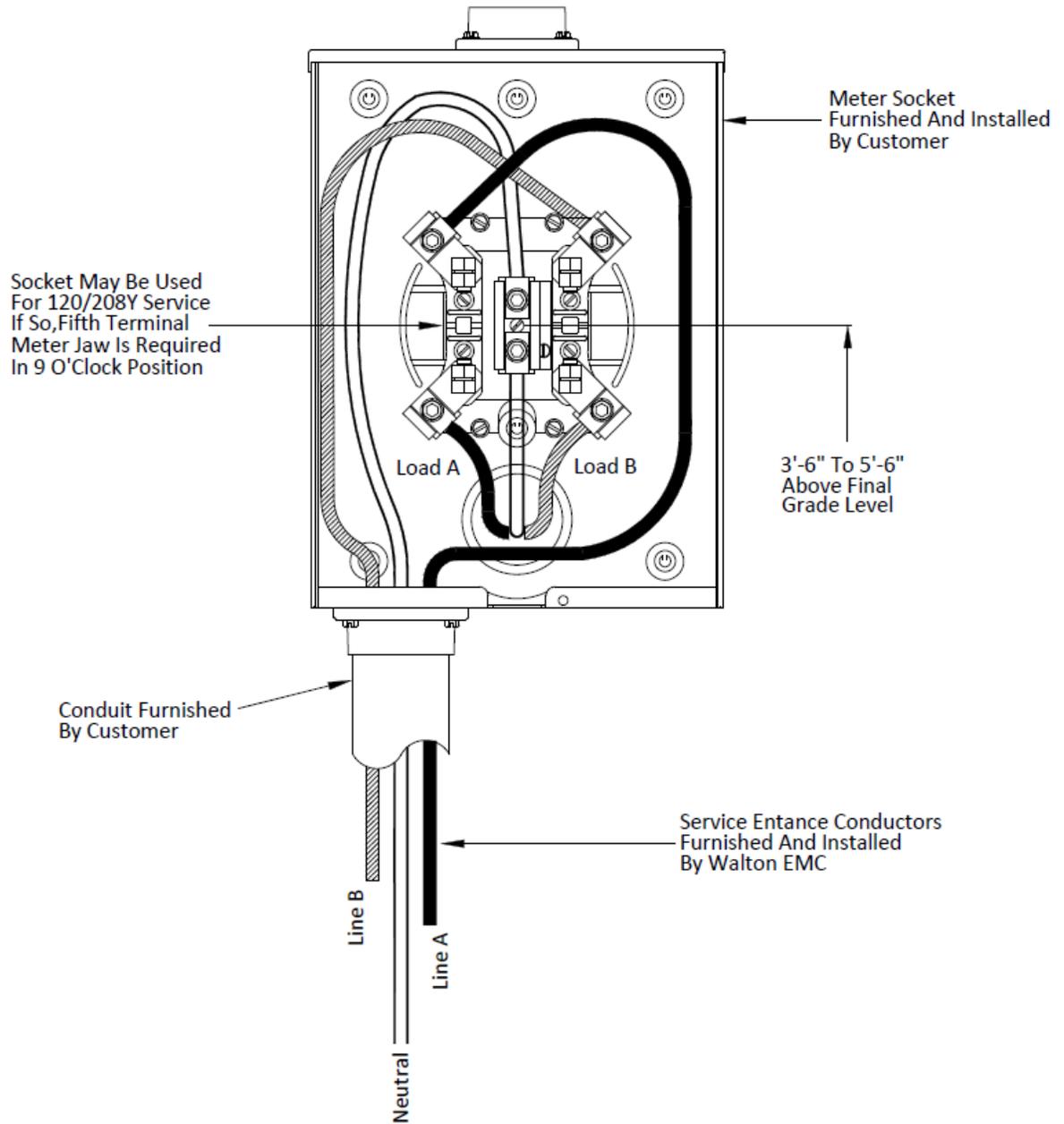
3.3 3-Wire Self Contained Socket

(225 Amps or less)

*i Overhead Socket Detail*



ii *Underground Socket Detail*

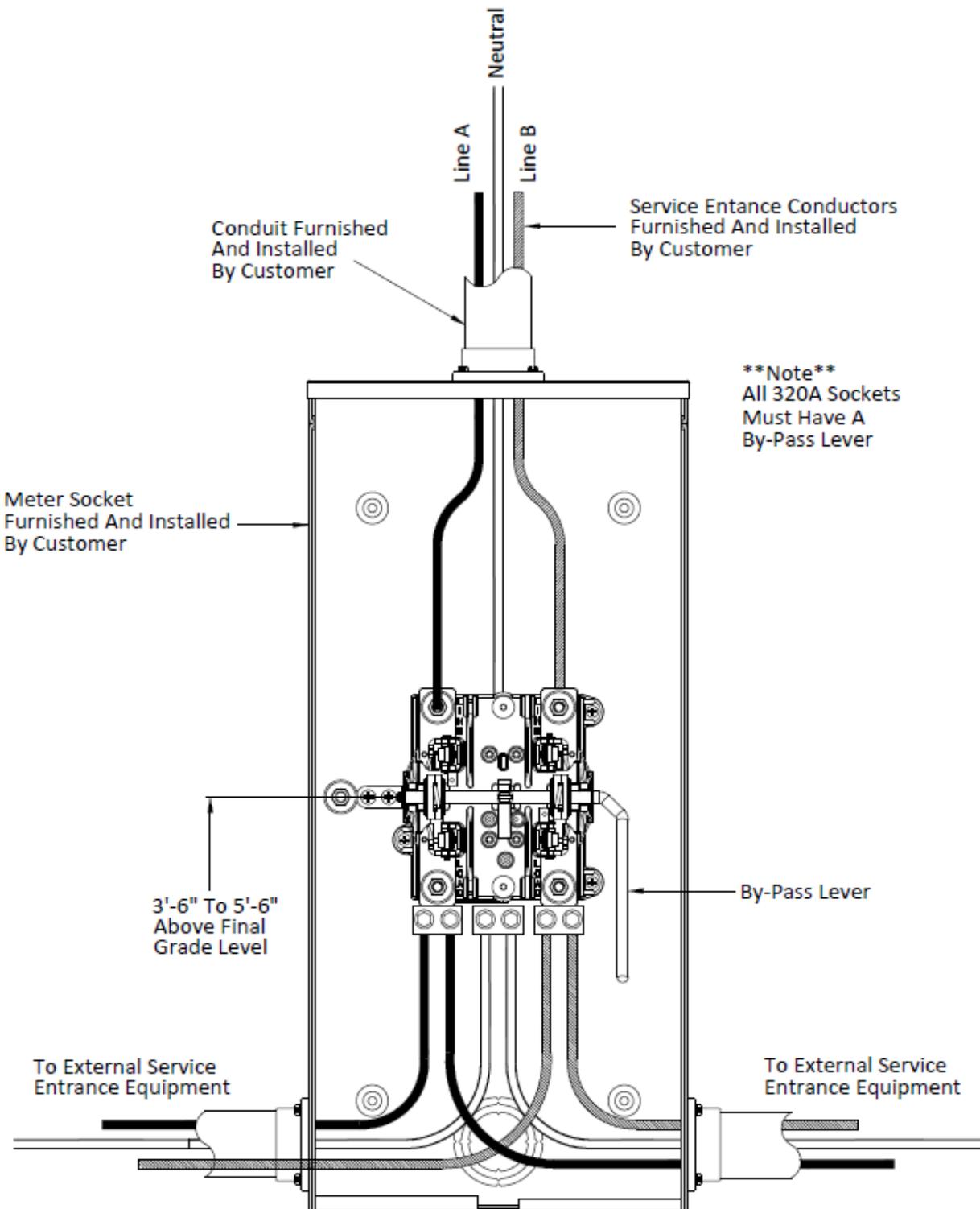


3.4 3-Wire Self Contained Socket

(225 - 400 Amps)

1. All 320 Amp sockets must have a bypass lever.

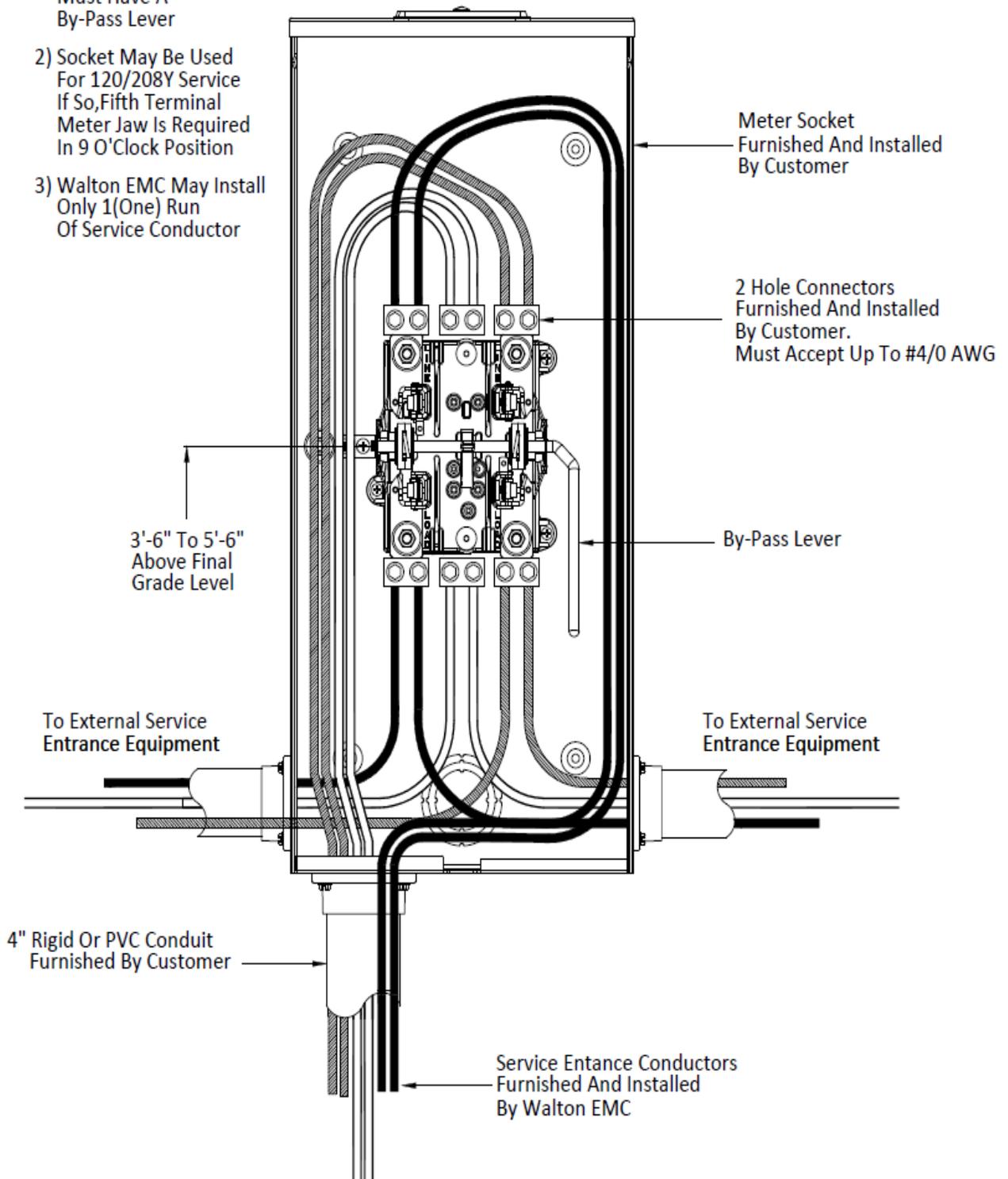
*i Overhead Socket Detail*



ii *Underground Socket Detail*

**\*\*Note\*\***

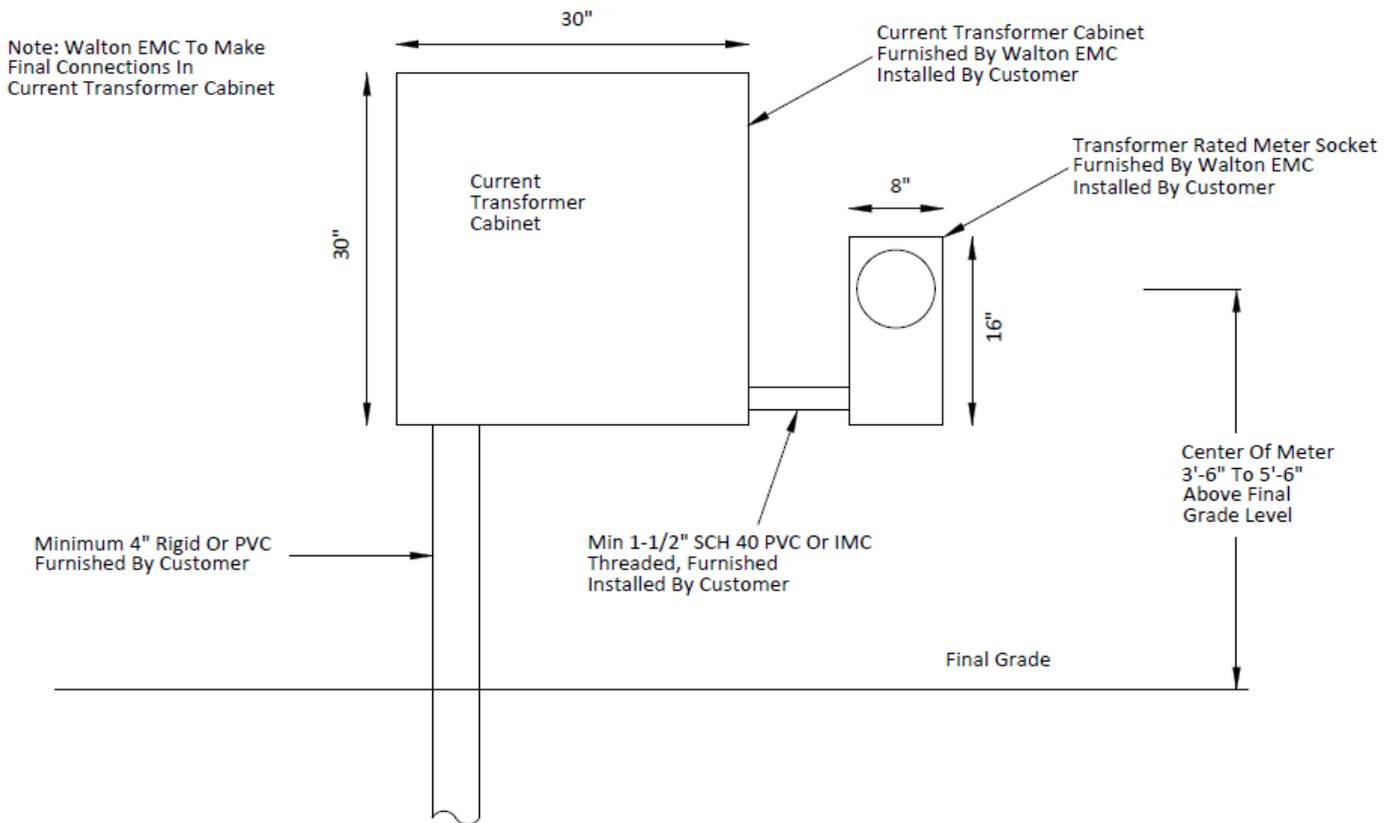
- 1) All 320A Sockets Must Have A By-Pass Lever
- 2) Socket May Be Used For 120/208Y Service If So, Fifth Terminal Meter Jaw Is Required In 9 O'Clock Position
- 3) Walton EMC May Install Only 1(One) Run Of Service Conductor



### 3.5 3-Wire CT Metering

(Greater than 400 Amps)

1. Contact your Walton EMC representative for residential services greater than 400Amps served with overhead conductor.
2. Current Transformer cabinet and meter socket to be mounted outdoors on structure wall.



## 4.0 MULTI-METER SOCKET INSTALLATIONS

### 4.1 External mounted Multi-Meter centers

- A. Riser diagrams shall be provided to Walton EMC Engineering before construction begins.
- B. Each meter position's cover shall be removable without having to remove any other cover(s).
- C. Each meter position shall have a lockable load side disconnect for Walton EMC use.
- D. The Customer shall install a grounded Fifth Terminal Meter Jaw in this equipment if the supply source is 120/208V WYE service.
- E. Meter socket and conduit shall be surface mounted.
- F. Meter socket address shall be permanently marked, internally with enamel paint and externally with minimum 1-inch high engraved letters and/or numbers in a contrasting color on plastic or metal labels. **Ink Markers, such as Sharpies, are NOT acceptable.**
- G. Meter Sockets, Entrance Doors, and Breaker Panels shall be permanently marked with address.
- H. Line side studs shall be equipped with nut, flat washer, and pressure maintaining (as a "Belleville") spring washer.
- I. Where Customer furnished connectors are used, they shall meet the requirements of U.L. "486B". Torqueing requirements clearly marked in the line side compartment for Walton EMC service conductors. Walton EMC will not terminate service conductors to customer owned breaker or fused disconnect.
- J. Customer furnished and installed minimum conduit requirement for underground service:
  - Two Positions: (1) 2½ inch conduit with minimum 12" radius sweep.
  - Three to Six Positions: (1) 4 inch conduit with minimum 16" radius sweep.
  - Above 6 Positions: To be determined by Walton EMC representative.
- K. All service entrance conductors and connectors shall be furnished and installed by Customer.
- L. See Walton EMC publication "*Multi-Position (Ganged) Single Phase Meter Specifications*" for further details

## 4.2 Interior Meter Centers

### A. Location

1. The customer shall provide a keyless entry for Walton personnel to enter property.
2. The customer shall provide a keyed lockbox or keyless entry for Walton personnel to access the building and meter room(s) at all times for reading, testing and other maintenance and/or safety purposes.
3. All interior meter centers shall be dedicated to utility metering only. **Meter rooms are NOT permitted to be used as customer's storage area.**
4. Interior meter centers shall be constructed so the center of the upper most meter shall not exceed 6.0 feet above floor level, and the center of the lowest meter shall be not less than 3.0 feet above floor level. See attached sketch on page 3.
5. Safety dictates metering equipment shall be located so Walton EMC personnel are provided level, unobstructed working space. This working space shall extend a minimum distance of 6 feet in front and 18 inches to either side of the equipment, and a height of 7 feet above floor level (Note: this may be greater than NEC 110.26 minimum requirements).
6. Meter center room light levels shall average not less than 30 fc with uniformity less than 10:1 Max/Min ratio.

### B. Equipment

1. Customer equipment shall be certified by a US Department of Labor Nationally Recognized Testing Laboratory (NRTL). The label, symbol or other identifying mark used by the testing laboratory shall be affixed to the unit.
2. All meter sockets shall be ringless type.
3. Each meter position's cover shall be removable without having to remove any other cover(s).
4. Each meter position shall have a lockable load side disconnect for Walton EMC use.
5. The building supply source shall be 208Y/120 Volt three phase service to the building with 120/208V single phase service to each meter. The **Customer** shall install meter sockets with grounded **Fifth Terminal Meter Jaw** in the 9 o'clock position on meter equipment to accommodate Form 12S metering.
6. Meter socket and conduit shall be surface mounted.

7. Metering center and conduit straps shall be securely fastened to the building using appropriate hardware for the construction type.

C. Labeling

1. Meter socket address shall be permanently marked, internally with enamel paint and externally with minimum 1-inch high engraved letters and/or numbers in a contrasting color (see the following page for an example) on plastic or metal labels. **Ink Markers, such as Sharpies, are NOT acceptable.**
2. Meter Sockets, Entrance Doors, and Breaker Panels shall be permanently marked with address.

D. Developer Submittals

1. Location - Submit site plan (stating name, address of each building in development) and building plans for all proposed meter centers relative to each building.
2. Meter Center Room - Submit detail plans for meter center rooms for Walton to ensure adequate working space, as defined by NEC 110.26 and OSHA 29 CFR 1910.303, is provided.
3. Meter Center Room Access- For safety purposes, interior meter center rooms shall be readily accessible, consistent with OSHA 29 CFR 1910.399 and NEC 110.26, to qualified Walton personnel. Submit details of Developer / Owner plan for Walton personnel to access property and meter center room(s).
4. Riser Diagram - Submit power riser diagrams for all meter center rooms
5. Statement of Agreement – Developer / Owner must submit, on company letterhead, a letter of agreement to the requirements stated in this document (“Walton EMC Interior Meter Center Requirement and Request” dated April 1, 2020). Include a contact name, number and email address for Walton to respond with approval or questions.

E. Approval

Walton will review all plans submitted and respond, to the contact provided, with approval or items to address.

See Walton EMC publication “*Interior Meter Center Requirement and Request*” for further details

## 5.0 SPECIAL APPLICATIONS

### 5.1 Residential Renewable Generation

Customers must not operate their generation facilities in parallel with Walton EMC's system until they have received written authorization for parallel operation from Walton EMC. Unauthorized parallel operation of customers generating facilities could result in injury to persons and/or damage to equipment or property.

Contact Walton EMC Member Services at (770) 267-2505 for details and application to operate Distributed Energy Resources in conjunction with Walton's system.

All installations shall meet IEEE 1547 standards.

### 5.2 Generator Interface to Meter Socket Switch

- A. Not all meter bases can accommodate the Walton EMC approved generator interface switch. Therefore Walton EMC personnel must verify the switch will mount to requesting customer's meter base.
- B. Customers must complete and submit the signed Agreement to Walton EMC Customer Service.
- C. Customer Service will forward signed Agreement to Walton EMC Metering Supervisor.
- D. Meter personnel will call customer to notify if the switch can be mounted on to customer's meter base.
- E. If switch will mount to base, Walton EMC Meter personnel will coordinate with customer a date and time of installation. (Note that power must be disconnected to residence during installation before customer can install )
- F. Walton EMC will document customer's account noting the switch has been installed at your location.