Duke Energy Indiana

Metering Guide for Installations

“Gold Book”

June 2019

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Publication Information

This publication is for informational purposes only and in no way shall this publication be construed to impose any liability upon the Company or any subsidiaries, affiliates or parent entities. The Company makes no warranties or representations in this publication expressed or implied, including but not limited to merchantability and fitness for a particular purpose.

The following policies and rules were the Company requirements at the date of publication and are subject to change. This publication is revised periodically and made available at no cost to electrical contractors, electrical inspectors, customers and other interested parties.

Download the latest version of *the Duke Energy Indiana Metering Guide for Installations* from the company website at https://www.duke-energy.com/partner-with-us/builders-developers-and-contractors/construction-toolbox

Indiana Metering Guide for Installations Book
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Duke Energy Indiana (DEI) Customer Care Center

To Apply for Service

800.774.0246

OR Visit Website at

http://www.duke-energy.com/indiana

To Report Power Outages

800.343.3525

Call Before You Dig: 811

June 2019 Changes and Additions

In-document changes are highlighted

Section I

- Placed link to Commercial Policy Guides

Section II

- N/A

Section III

- Reference to pit-pad changed placed in “E”

Section IV

- Added General Information, removed section “F, Auto Transformers”, Moved Section “H” and created new General Section “A”

Section V

- Updated number of allowed wire sets in pad-mounted transformers using pit-pad

Figures

- Updated Table of Contents (Main and Figures)
- Added/updated Figure 47, 63, 69, 106B, 115

Section I

A. Introduction

Disclaimer

This publication is a guide to the Company's electric service requirements and is not intended to cover all rules and National Electric Code or National Electric Safety Code regulations. It is intended to promote uniformity throughout the Company's (as defined below) system and to provide a satisfactory interface guide for the customer's electric service equipment at the service point.

The Company is required to comply with the rules and regulations in National Electrical Safety Code (NESC) and Occupational Safety & Health Administration (OSHA) in the construction and operation of its facilities. All requirements in this document are intended to meet or exceed those requirements.

Except for the installation and maintenance of its own property, the Company does not install or repair wiring on the customer's premises and, therefore, is not responsible for the electricity beyond the service point and does not assume any responsibility for, or liability arising because of the condition of wires or apparatuses on the premises of any customer beyond this point.

Duke Energy Indiana, herein referred to as the "Company" provides this publication to assist all customers in planning for and obtaining prompt and satisfactory electric service.

Any reference to Engineering and Construction Planning in this publication includes the Company's Regulated Business Unit.

The format of this manual allows for updating of information and drawings. Additions and revisions will be forwarded to individuals listed on the master roster. Please remember it is the customer's responsibility to obtain and maintain a current version of this publication.

All users of the "Indiana Metering Guide for Installations" book are encouraged to submit proposals to aid in future revisions. Please submit proposals as follows:

- Give section, paragraph and page number to which the proposal pertains.
- Submit proposal in writing including details, sketches, drawings and all supporting information.

Questions or comments can be sent to:

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Tom.Hostetter@duke-energy.com	Design Engineering
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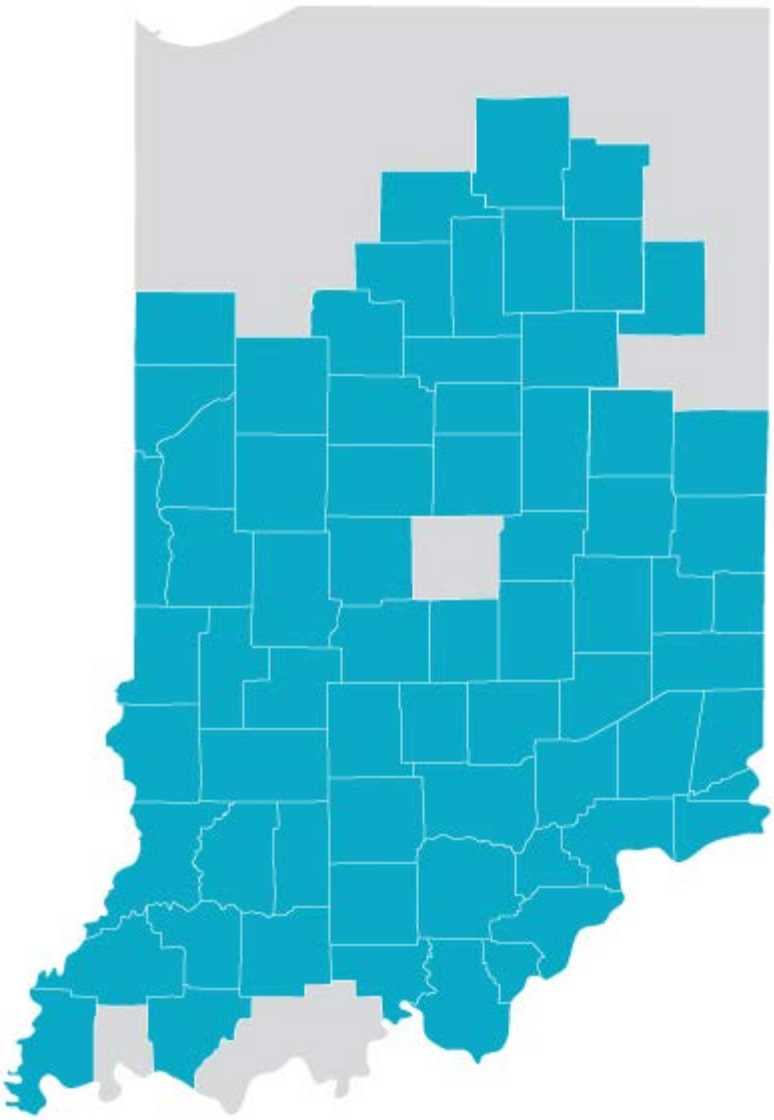
B. Indiana Service Territory Map



C. Definitions

The following definitions shall apply for terms used in this book.

ANSI – American National Standards Institute.

Authority Having Jurisdiction (AHJ) – A person or agency authorized by a governmental body to inspect and approve customer electrical installations.

Available Fault Current – The maximum current that would flow due to a direct short from one conductor to ground or between conductors at the point of calculation.

Company – Duke Energy Indiana (DEI).

Customer – User of the Company's electric service or the user's authorized representative.

DEI – Duke Energy Indiana.

DEM – Duke Energy Midwest.

DEC – Duke Energy Carolinas.

DEF – Duke Energy Florida.

DEP – Duke Energy Progress.

Demand – The average rate at which electric energy in kW, kVA or kVAr is consumed per time interval.

Demand Ampere – Average current flowing during the peak demand interval.

Distributed Energy Resource (DER) – An electric service where co-generators and independent power producers operate in parallel with the Company's electric system. Energy may flow in either direction through an interconnection.

Emergency and Standby Generators – Generators that normally operate only when the Company's electric service is unavailable and that are normally connected in such a way that no interconnection can exist.

High-Leg (Power Leg) – The conductor in a three-phase, 4-wire delta secondary connection that has a higher voltage to ground potential than the other conductors, typically 208 volts.

IEEE – Institute of Electrical and Electronic Engineers Inc.

Instrument Transformer (IT-rated or T-rated) – Current transformer (CT) or voltage transformer (VT) used to obtain current or voltage levels required for metering circuits.

Interconnection – An electric service where co-generators and small power producers operate in parallel with the Company's electric system. Energy may flow in either direction through an interconnection.

Meter Equipment Group (MEG) – A comprehensive list of meter enclosure devices approved by a committee representing participating electric utilities.

Meter Enclosure – A device that houses a meter socket and line and load connections.

Meter Socket – A device that provides support and a means of electrical connection to a watt-hour electrical meter.

NET Metering – A type of interconnection where customer-owned generation such as solar panels or wind turbines provide energy in parallel with the Company service. Energy generated and not consumed by the customer flows back to the Company.

NRTL – Nationally Recognized Testing Laboratories such as UL, MET Labs, ETL, TUV, CSA, etc.

National Electric Code (NEC) – A code sponsored by the National Fire Protection Association for the purposes of safeguarding persons and property from hazards arising from the use of electricity.

National Electric Safety Code (NESC) – A code sponsored by the Institute of Electrical and Electronics Engineers Inc. under the auspices of the American National Standards Institute for the purposes of the practical safeguarding of persons during the installation, operation or maintenance of electric supply and communication lines and associated equipment.

Network Metering – A service usually delivered by a 120/208 three-phase transformer using a combination of transformer type metering in conjunction with single-phase 3-wire meters. Commonly found in apartment complexes where three-phase service is required for facilities but not for individual units.

Premise – The street address (physical location) to which the Company provides electrical service: a house, apartment, business, area light or streetlight. Every electric service account is associated with a premise, although a premise may have more than one account associated with it. For example, if a customer has a separately metered shop behind his house, the shop and house must be on separate accounts, but they are associated with the same premise.

Rotating Generation – The total components and subsystems that, in combination, convert methane gas or wind energy into electric energy suitable for connection to a utilization load. This is an example of a DER.

Service – The supply of electricity from the Company to the customer including the readiness and availability of electrical energy at the service point at the standard available voltage and frequency whether or not utilized by the customer.

Service Drop – The overhead service conductors between the Company's facilities and the service point to the customer's property.

Service Entrance – Customer-owned wire and or enclosures connecting the customer's service equipment to the Company's service drop, service lateral, transformer bushings or other source of supply.

Service Lateral – The underground service conductors between the Company's secondary conductors or transformers and the service point.

Service Point – The point, as designated by the Company, where the Company's overhead service drop, underground service lateral or transformer secondary bushings connect to the customer's service entrance conductors.

Solar Photovoltaic (PV) System – The total components and subsystems that, in combination, convert solar energy into electric energy suitable for connection to a utilization load. This is an example of a DER.

Tariffs – The applicable rates and electric service rules and regulations under which all energy is delivered and all service is rendered by the Company.

Temporary Service – Service to non-permanent locations such as fairs, displays, exhibits, construction sites and similar temporary purposes.

D. Requesting Service and Requirements

All customers must contact Duke Energy to request service. For information on requesting service, please call 800.774.0246 or visit:

https://www.duke-energy.com/home/start-stop-move

The following information may be needed by the Company to make any agreements for service:

- Service address
- Legal name of the customer who will be using the service and any legal documentation
- Date when customer will be ready for service
- Requested service voltage and service point
- Total connected load
- Any load management equipment
- Diagram of the electrical system including any switchgear
- Plot plan

E. Metering Equipment Pickup Location

- Each district office location will designate the location for the customer or their representative to pick up Company-provided equipment.

- Generally, the engineer associated with the customer project will communicate the time and location.

F. Installation of Electric Facilities

Installation of electric facilities will begin when all of the Company requirements have been completed:

- The Company, customer and the property owner to be served have approved the method of service.

- Arrangements have been made for the billing and collection of charges for the service to be provided.

- The customer and all parties have completed the required agreements and/or grants of easement to the Company for the installation of facilities on or across private property.

- Final grades and elevation within those areas where the Company is to install facilities and assurances these areas are accessible and clear of stored materials or other construction activities.

- The Company has received all required permits to install its facilities.

- Adequate protection for Company-owned equipment has been installed.

G. Service Connections

The Company will connect to a customer's newly wired electric service equipment or reconnect rewired electric service equipment when all Company requirements have been completed, including;

- The Company has received application for service.

- The Company has determined that the customer is in compliance with its requirements for electric service.

- The Company has received a certificate of approval from the AHJ.

H. Unauthorized Use of Electricity

Removal or relocation of an electric meter without the Company's permission is prohibited. Tampering with the Company's metering equipment, making an unmetered connection or making an unauthorized reconnection to the Company's system is prohibited. The penalties for these activities may include fines and imprisonment.

I. Locating Company and Other Utilities

State law requires that before any digging or excavation takes place, you must call before you dig. Customers should call **811** at least **2 days** prior to the start of any digging, construction or below-grade work. For more information visit:

https://www.duke-energy.com/safety-and-preparedness/call-before-you-dig

J. Residential and Commercial Policy Guides

It should be noted that this Metering Guide does not cover all service requirement information. For additional information, the below policy guides should be used:

- Duke Energy Indiana Residential Policy Guide: https://www.duke-energy.com/partner-with-us/builders-developers-and-contractors/construction-toolbox
- Duke Energy Indiana Commercial Policy Guide: https://www.duke-energy.com/_/media/pdfs/for-your-business/commercialandindustrialpolicyguide.pdf

Section II

Distribution Services

A. Service Voltages

Listed below are service voltages that may be available based upon customer location and calculated load. For availability and before installation of any service, the customer should contact Duke Energy at 800.774.0246 to make an appointment with a distribution engineer

Service voltages 600 volts or less. All voltages delivered at 60HZ.

- Single-phase, 3-wire, 120/240VAC
- Three-phase, 4-wire, 120/208Y VAC
- Three-phase, 4-wire, 277/480Y* VAC

***The Company does not permit any floating WYE services**

At the Company's discretion, the following services may be offered for limited use.

- Single-phase, 3-wire, 120/208VAC
- Three-phase, 4-wire, 240/120VAC

Service voltages over 600 volts:

- Single-phase, 3-wire, 12470/7200Y VAC
- Three-phase, 4-wire, 12470/7200Y VAC
- Three-phase, 4-wire, 34500/19920Y VAC

Transmission design approval required for the following:

- Three-phase, 3-wire, 69000VAC
- Three-phase, 3-wire, 138000VAC

Section III

Service Installation and Types

A. Temporary Electric Service

See Figures 102 and 104.

The Company will supply temporary electric service, where available, subject to applicable tariffs on file with the appropriate state public utility commission. For more information or for requesting temporary service, please contact Duke Energy at 800.774.0246 or visit:

https://www.duke-energy.com/home/start-stop-move

Before the Company will provide temporary service for single-phase services of 200 amps or less, the customer must furnish the following:

- Temporary support with address visible from the street
- Service entrance conductor or underground service lateral
- Weatherhead (for overhead service)
- Service drop attachment device (for overhead service)
- Ringless meter socket that meets MEG requirements
- Meter board (where required)

- Service grounding
- Service disconnecting device
- Any other equipment required by the AHJ inspector

B. Permanent Electric Service

See Figures 103, 105, 106A, 106B and 108.

Only one service drop or underground service lateral, except for separate lighting and power services, will be supplied to any one structure. Exceptions may be permitted by the National Electrical Code but are subject to approval by the Company and the local AHJ. For more information, please call Duke Energy at 800.774.0246 or visit:

https://www.duke-energy.com/business/start-stop-move/electric-service-install-specs

C. Overhead Services 600 Volts or Less

Any overhead service must be approved by Distribution Design and Engineering before any work is to be performed. For overhead service requirements, please contact Duke Energy at 800.774.0246 to schedule an appointment with the local Duke Energy distribution engineering department. A representative will meet with the customer on-site to determine the available options.

- The service drop attachment must be safely accessible and in direct line to the Company's service pole. Safely accessible is defined as accessible with an extension ladder placed on firm level ground directly beneath the point of attachment and with a mounting height of no greater than 20 feet. If these conditions cannot be met, contact your assigned distribution design representative.

- The service drop attachment must be located so that the service drop will not cross adjoining property.

- The service drop attachment must be located at a height to permit the following minimum clearances (under conditions of maximum sag) at any point along the span of the service drop conductors. These clearances apply to Company-owned service drops meeting NESC rule 230C3 (triplex,

quadraplex, duplex or parallel-lay conductors). For other Company-owned service conductors (open wire, bar wire), refer to NESC for appropriate clearances. **(See Figures 11 and 103.)**

1. Twelve feet above finished grades, sidewalks, platforms or projections from which the conductor might be reached when the voltage is limited to 300 volts to ground.

2. Sixteen feet above residential driveways, commercial areas, parking lots, public streets, alleys, roads, commercial driveways and areas subject to truck traffic or agricultural vehicles when the voltage is limited to 300 volts to ground.

- The service drop conductors to a structure must have a horizontal clearance not less than 3 feet from all windows, doors, porches, fire escapes or similar locations readily accessible to pedestrians. All other clearance requirements of the NEC, NESC, and state and local requirements must be met.

- The service drop attachment or service mast guying attachment device must not be installed on a masonry chimney.

- The minimum size service mast for attachment of a service drop is 2-inch rigid steel or 2-inch intermediate metallic conduit (IMC). Conduit couplers are not permitted above the roof line. Couplers, if required, must be installed below the second conduit support from the roofline.

- For billboard metering, refer to **Figures 12 and 13.**

D. <u>Service Entrance Conductors</u>

- All single-phase installations shall be wired as a three-wire service. **(See Figure 109.)**

- If overhead, service entrance conductors must extend at least 3 feet from the weatherhead.

- Outdoor grounded service neutral conductors must be identified and colored as white or gray.

- If a 4-wire delta service, the conductor having the highest phase voltage to ground must be permanently colored orange and marked as such at any junction or termination. This phase will be landed as “C” phase within the meter socket or CT cabinet. **(See Figure 32.)**

- Neutral and phase conductors must remain as a continuous run, free of junctions or splices, from the point of Company connection to customer equipment.

- All connections and terminations shall use an oxidation inhibitor.

- All connections shall be torqued to manufacturer’s specifications.

- Phase conductors must be properly color coded to meet Company requirements.

Voltage	Phase Coloring, A, B, C, N
Power Bank 240	Black, White, Red (A, B, C)
Power Bank 480	Black, Gray, Yellow (A, B, C)
120/208Y	Black, Red, Blue, White
120/240D	Black, Blue, Orange (high leg), White
277/480Y	Brown, Orange, Yellow, White

E. Underground Service

The meter location and the point of connection to the Company’s system will be determined by Distribution Design and Engineering. Generally, the customer will provide, install, own and maintain all new service laterals. Prior to the start of any work, please contact Duke Energy at 800.774.0246 to schedule an appointment with a distribution engineer.

New requirements for concrete pit-pad installations (pad-mounted transformers), have been updated on the Company website. Please refer to the following webpage, https://www.duke-energy.com/_/media/pdfs/partner-with-us/padtransformerconcretefoundspecs.pdf

F. Services Over 600 Volts

Distribution Engineering must be contacted early in the planning stages of the customer project for any service over 600 volts. These services require a considerable amount of time for the Company to prepare drawings, provide site evaluations, environmental impacts and to order the necessary equipment. The Customer must provide one-line drawings to Distribution Engineering. All phase conductors operating above 600 volts or primary voltage shall be color identified as **Red, White, Blue – A, B, C phasing**.

G. Electrical Contractor Sealing Policy

A licensed electrical contractor must notify the Company prior to performing any work within the meter base. The Company will determine if a customer outage is required for safe completion of the work. Upon completion of the work, the contractor must immediately notify the Company for inspection of facilities and re-sealing of the meter base.

H. Refusal or Discontinuance of Service by the Company

The Company may refuse or discontinue service for certain reasons. Several of these reasons are listed below.

- Non-payment of bills for electric service
- Refusal or failure to make deposit when requested
- Failure to rectify a deficiency or defect in the customer's wiring or other facilities after receiving notice from the Company that such condition exists
- Unauthorized use of electric energy
- Operation of equipment that causes voltage flicker or objectionable service characteristics to other customers
- Neglect or refusal to provide safe and reasonable access to the Company
- Tampering with meters or other facilities furnished and owned by the Company
- A hazardous condition found by the Company

I. Grounding

- Service entrance wiring with a neutral must have the neutral grounded. Grounding of all electrical services and equipment must be in compliance with the NEC and meet the requirements of the certified electrical inspector servicing the customer's area.

- The grounding electrode cannot be routed through the metering equipment. No customer grounding connections shall be made in current transformer cabinets.

- Grounding electrode conductor shall be installed per the NEC.

- The grounding electrode conductor and the grounded service neutral conductor must be connected to the neutral/grounding bus of the service switch or service panel board. The grounding electrode conductor must be installed in accordance with NEC.

J. Grounding of Meter Test Device Cabinets or IT-Rated Meter Sockets to CT Cabinets

Service installations of 600 volts or less must be grounded as follows;

- When metallic conduit system is used, grounding can be obtained by proper bonding at both ends of the conduit run; or

- All metering equipment enclosures must be bonded to the main service disconnects.

K. Temporary Service from a Three-Phase Transformer

See Figures 111A and 111B.

The company can provide temporary service from a three-phase transformer provided the following requirements are met:

- The customer shall install a seven-terminal, MEG-approved meter base with bypass if four line-side wires are to be used.

- The customer shall install a five-terminal, MEG-approved meter base with bypass if three line-side wires are to be used.

- If using a five-terminal meter base, A phase, B phase and Neutral must be installed at the line side of meter the base.

- If using a seven-terminal meter base, A phase, B phase, C phase and Neutral must be installed at the line side of the meter base.

- A single-phase, 3-wire meter base CANNOT be used. It must be a five-terminal or seven-terminal meter base.

- The customer may take only partial phasing off of the LOAD side of the meter base, but ALL phasing is required at the line side.

Section IV

Customer Equipment

A. General Information

The Company will not be responsible for any Customer equipment that causes objectionable voltage fluctuations. The operations of any Customer equipment causing objectionable voltage fluctuations on the Company's system will not be permitted and such Customer equipment may be disconnected.

Minor voltage fluctuations and momentary outages on utility or Customer distribution systems are normal and might adversely affect the operation of sensitive electrical loads. Installation of supplementary equipment, at the Customer's expense, may be necessary to assure satisfactory operation.

B. Metered and Unmetered Wiring

- Unmetered conductors will not be permitted in any wiring raceway, junction, pull box or distribution cabinet containing metered conductors.

- All metered connections, self-contained and IT-rated, will be terminated by Duke Energy. All conductors must be clearly marked.

- Service ampacity is limited to 3000 amps per transformer. Customer must contact Distribution Engineering and Design for any installations exceeding this limit for approval.

- All customer service equipment must be rated for the available fault current on the Company's system. Information on available fault current can be obtained by contacting Distribution Engineering and Design.

- All commercial meter bases, regardless of voltage, shall be equipped with a meter socket bypass handle.

C. Disconnect Device

- The customer is responsible for providing an appropriate disconnect device and following all local and state electrical requirements.

D. Customer-Supplied Meter Bases/Meter Equipment Group

All self-contained meter bases and related equipment must be in compliance with the Meter Equipment Group standards. All customers and contractors are required to only use service equipment meeting these guidelines.

Duke Energy is a member of the Meter Equipment Group (MEG), which is an organization comprised of electrical utilities that specifies the requirements for customer-owned, self-contained meter sockets and maintains an approval list of the sockets. Only self-contained meter sockets including individual meter sockets, ganged meter sockets or multi-position meter centers that are on the MEG-approved list may be used. In addition, all sockets and meter centers must comply with the mounting heights specified in this manual.

The Company reserves the right to refuse connection of services on any equipment not complying with MEG requirements. For more information on the Meter Equipment Group, and to obtain an approved list of equipment, please visit:

https://www.duke-energy.com/_/media/pdfs/partner-with-us/meg-approved-sockets.pdf

NOTICE:

These meter sockets can be purchased from local electrical supply companies.

Contact the local Duke Energy Indiana office to discuss the location of this meter socket on your building.

The customer shall be responsible for all maintenance of self-contained meter sockets.

E. Generators

- No other source of electricity can be connected to the customer's wiring system that results in parallel operation with the Company's system unless prior written authorization has been received from the Company.

- The temporary use of portable generators is acceptable provided that the generator connection is beyond the meter enclosure, on the load side conductors, and is utilizing the proper transfer equipment to protect the safety of the customer and Company personnel.

- Transfer switches must be "break-before-make" or "Fast Transition" (parallel time </= 100 milliseconds).

- Long-term generation interconnection requires co-generators and small power producers interconnected with the Company shall be controlled to prevent back-feed into the Company's lines when the Company's service to the interconnection is interrupted. Before any interconnection is established, the customer shall contact the Company's representative and submit sufficient information on the generation and control equipment to allow the Company to determine the necessary safety and control equipment that shall be added to its line to permit safe and reliable service to its customers and for Company personnel safety. **See Figures 63-71.**

F. Interconnection of Customer Renewable Generation Equipment

See Section V, item, L, page 34.

G. Busbar Cabinet

- When a condition exists where more than five (5) total runs of wire for a CT cabinet or eight (8) total runs of wire for a pad-mount transformer are needed, then the use of a step-bus cabinet will be required. The total runs of wire include both the Company and customer. It is the responsibility of the customer to provide this equipment and to verify that it meets the

requirements of the Company. Contact Distribution Engineering and Design prior to the purchase or completion of any work.

- Certain situations may require that Field Metering install current transformers (CTs) into the busbar cabinet or multiple sets within a pad-mounted transformer to satisfy metering requirements for multiple customers served by a single transformer source. The location requirements for customer cable entry can be found on **Figure 115**.

Section V

Electric Meter Installations

A. General Information

- Removal, relocation or performing any work on an electric meter without the Company's permission is strictly prohibited. Tampering, making an unmetered connection or making unauthorized reconnection to the Company's system is prohibited. Penalties for such activities can include fines and imprisonment.

- Prior to the installation of any metered services, the customer must call Duke Energy and schedule an appointment with a distribution engineering representative.

B. Metered and Unmetered Wiring

Certain types of customer installations require special metering. Current and voltage transformers are used for metering installations over 600 volts (primary), over 320 amps, or any service exceeding 240 volts. All metering poles and structures must be inspected and approved by Distribution Engineering or the Field Metering department.

Metering equipment will be connected before the customer's main disconnect as described in the National Electrical Code. Any other design requirements must be approved by the Company and the AHJ.

- Busbar installations
- Service ampacities exceeding 320 amps continuous (self-contained)
- Service ampacities exceeding 1200 amps
- Service voltages over 600 volts
- All metering other than self-contained

- Multiple occupancy
- NET metering
- Network metering
- Mobile homes
- Pulse sending metering

C. Self-Contained Metering Installations

- All self-contained metering sockets are purchased, installed, maintained and owned by the customer. All meter sockets, enclosures and other related equipment must be on the approved MEG (Meter Equipment Group) list.

- All new meter enclosure installations on underground services must be at least 200 continuous amps.

- No disconnection devices, breakers, load breaks transfer switches or equipment shall be installed at the line side conductors ahead of the meter, with exception to network metering (**Figures, 27, 112-114)**.

- All line side conductor terminations will be made by the Company or its representatives.

- Customer is responsible for obtaining an electrical inspection from the AHJ prior to the connection of service.

- Customer will furnish, install and maintain the meter socket, overhead service drop attachment, service entrance conductors, underground service laterals, connections to the meter socket terminals, service disconnecting device, and service grounding system.

- The Company will furnish, install and maintain the overhead service drop, connectors for the underground service lateral to the Company's facility, and the electric watt-hour meter.

- All commercial metering, regardless of voltage require a meter socket bypass handle and to be of ringless type.

- All residential meter sockets must be of a ringless type.

- Meter bases cannot be used as a raceway, junction, termination point, or for grounding any other cables, wires or service conductors.

- Any residential meter base over 200 amps shall be equipped with a socket bypass handle.

- Meter base load side service lugs shall have only one wire installed on each factory installed lug; no double tapping of lugs is permitted.

- A self-contained meter base shall not be modified in any way beyond what was intended as specified by the manufacturer, including the addition of blocks or connectors to increase capacity.

- No customer-owned meters shall be installed before the Company-provided service meter without written authorization from Field Metering.

- Only Company-approved devices may be installed between the Company electric meter and meter socket.

D. Transformer-Type (IT) Metering Installations

- IT-rated meter installs may be metered at the point of connection (pad-mount transformer), current transformer cabinet (CT cabinet), pole-type installation (non-preferred) and Busbar cabinet.

- The Company will supply appropriate meter base, CT cabinet and related current transformers.

- CT and PT equipment shall not be installed or located within customer-owned equipment such as switchgear or panels.

- Customer may, upon request and with special Field Metering approval, provide their own CT cabinet. If such approval is given, the same limitations to service conductor size and quantity still apply.

- The customer or electrical contractor can arrange for equipment pickup by contacting the distribution engineer assigned to the project.

- The customer or electrical contractor is responsible for the mounting and installation of the Company-provided meter base and CT cabinet. Certain guidelines are required when mounting this equipment. Close attention should be made to the provided figures. This diagram depicts the approved locations for customer service entry cable. No entry point location of any kind, other than what is shown here, should be made without prior approval from Field Metering **(Figures 101, 21 and 44)**.

- There is a maximum number of wire runs allowed in a CT cabinet or pad-mount transformer installation. Five (5) total runs allowed in a CT cabinet and eight (8) total runs for a Pad-mount transformer. Twelve (12) sets are allowed if using a pit-pad. The number of maximum runs for a CT cabinet **INCLUDES** two Company service runs, thus allowing for a maximum of three (3) customer runs.

- The maximum wire size provided by the customer into the CT cabinet is 750MCM.

- The customer is prohibited from using the CT cabinet as a “chase” or “pull through” for any other wire.

- Customer-owned CTs or other equipment may not be installed inside of the CT cabinet or meter base.

- CTs may not be installed on customer- or Company-owned risers unless otherwise approved by Field Metering.

- In certain conditions and if underground-fed service is not possible, a CT cabinet may be installed on a customer building to accept an overhead service connection through an appropriately sized customer-owned riser. This riser cannot exceed 4 inches in diameter and must follow the installation guidelines in **Figure 101**. All CT and other cabinet installation guidelines and limitations apply.

- The customer is not permitted to make any ground connection within the CT cabinet or pad-mounted transformer. The customer ground shall be isolated from the Company system neutral.

- The customer may not use “SE” or service entrance cable into a CT cabinet.

- Customer or electrical contractor will provide wire from the customer disconnect into the CT cabinet and leave at least 6 feet of additional wire. This wire should be coiled up and secured inside the CT cabinet.

- In the case of single-customer three-phase pad-mount installations, Field Metering will place the meter base installation at the exterior of the transformer and use bushing type current transformers. The customer or electrical contractor will provide service entry cabling to the interior of the transformer providing at least 6 feet of additional cable. No terminations are to be made by the customer at the interior of the transformer.

- The customer will furnish, install and maintain the service entrance conductors or underground service laterals, service disconnecting device, conduit for metering cables from CT cabinet to meter socket, service grounding and bonding, primary (line side) conductors and connections to the current and voltage transformers on 600-volt and higher installations and any conduit or equipment related to obtaining pulse output signals from Company-provided pulse equipment.

- The Company will furnish and maintain instrument transformers, CT cabinet, meter socket, meter and instrument wiring, impact blocks for wire terminations and mounting racks or cabinets associated with primary 600 volts and above metering.

- Tran-socket meter bases are not permitted on new services. Tran-socket meter bases that have failed shall be retrofitted to current IT-rated service design standards.

- A customer desiring to utilize 277/480Y four-wire service as a three-wire service is required to bring into the DEI pad-mounted transformer or CT cabinet a corresponding neutral conductor not less than one size smaller than the phase conductors.

E. Outdoor Meter Installation Location

- All meter installation locations must adhere to both Duke Energy standards as well as any local jurisdiction requirements. The location of the meter must be approved by the Company before it will make any service connections. Some locations may require that the Customer install guards or other protective devices to protect Company metering.

- Normally, meter sockets will be installed 4 1/2 to 5 1/2 feet above final grade. For multiple occupancy residential or commercial installations, contact Distribution Engineering for installation requirements **(Figures 25, 26, 27)**.

  Exception: In flood zones where the requirements mandate that the meter be located 6 feet above grade, read and permanent accessibility to the meter (including the working space described below) shall be provided for reading and testing **(Figure 5)**.

- Meter sockets and enclosures shall be securely mounted in a plumb and level position on a solid wall. With Company design approval, meter sockets and enclosures may be mounted on a customer-provided “H”

style structure. The customer shall be responsible for securely fastening the meter enclosure in order to withstand the normal forces required to routinely remove and install the meter.

- Meter enclosures shall not be recessed or framed in any way that blocks access, knockouts or drainage.

- When space or other circumstances do not allow for the installation of the meter enclosure, CT cabinet or other equipment, a Company-approved “H structure” may be used. This structure must be designed to carry the weight of associated equipment, provide adequate means of Company access and withstand exposure to outdoor elements. The structure should not be erected until a final install location is approved by the Company. The following should be used as a minimum set of guidelines **(Figure 117)**:

    1. Structure shall be constructed of steel or aluminum with legs supported in proper concrete footers extending below the frost line (typically 36 inches).
    2. Backing board area should be a minimum area of 2 feet by 3 feet (self-contained) and 5 feet by 4 feet (CT cabinet). Shall be constructed of angle iron, steel or Unistrut.
    3. Minimum of two corner posts.
    4. Fasteners must be weather-resistant and of adequate length to secure the structure and attachments.
    5. Beginning in 2020, supporting posts shall be constructed with 2-inch minimum diameter galvanized steel posts, buried 36 inches deep secured in proper concrete footers.

- Electric meters and related equipment will not be installed directly under or close to any window, in restrooms, under or behind pipes, valves, steam traps, or other obstructions, close to motors, drive belts, rotating machinery or any other location subject to vibrations. Meters will not be installed in any location exposed to gases, fumes, vapors, liquids or other areas containing environmental hazards that pose risk to the public or Company personnel.

- Beginning in 2020, underground service conduits shall use expansion couplings at the meter enclosure and conduit connection.

- When underground 90-degree sweeping conduits are used on service wire, no more than one (1) sweep (minimum 30-inch radius) shall be used unless each sweep is separated by a minimum distance of 6 feet.

- Meters for single-family residences shall always be located outdoors. Meters shall not be located in areas such as carports, open porches,

swimming pools, etc., which are susceptible to subsequent enclosures by walls or screens. Any deviation shall be approved in writing by an authorized Company representative.

- Indoor installations of metering equipment are not acceptable and require prior approval from Field Metering and Distribution Engineering. If such approval is obtained, the customer will be furnished with guidelines for completing the requested installation. **(See section F.)**

- In some cases, IT-rated services may be metered on a Company-owned pole.

- A clear space at least 3 feet wide, 4 feet deep and 8 feet high must be provided and always be available around every meter for reading, inspecting, testing and maintenance operations. Clear space for safe access to and egress from the working space must be maintained.

- In the event a meter is later enclosed or otherwise made inaccessible or unsafe, the customer shall, at the customer's expense, have the meter facilities moved to a readily accessible outside location.

- Meter enclosures and other metering equipment shall not be installed, placed, relocated or contained within any enclosure, recess, cavity or box.

- For CATV, telecommunications, antenna systems and similar equipment requiring service from the company, the customer shall install, at their expense, with Company approval, an adjacent pole or ground-mounted structure for the installation of CATV/telecom equipment and metering point. The Company shall provide a three-wire, single-phase, 240V service **(Figure 116)**.

- Customer-owned conduit, meter bases, meters, switches, breakers, panels, wiring or other equipment shall not be attached, mounted or anchored to any Company-owned pole or structure.

F. Guidelines when Metering Facilities Are Located Inside Building

- When no ground level exterior wall of the building, in the Company's view, is suitable for the installation of metering equipment due to either physical space limitations or good engineering design, an interior meter location is permissible.

- If there is only one meter room, it should be located on the first floor. If multiple meter rooms are required, they must be vertically aligned. Typically, only one centrally located meter room is allowed on each floor. Exceptions to this policy due to exceptional distances must be reviewed to ensure meter rooms are configured consistently.

- Grouped meter locations of different voltages may be allowed in the same metering room. The customer furnishes and installs the required number of Company-approved meter sockets or ganged meter panels. If CTs are required, Duke Energy will supply the meter base and CTs. Where 120/208 volts single-phase (network) is required, the meter sockets will require a factory-installed fifth terminal in the 9 o'clock position. The Company provides and installs the meters.

- The space available for the metering equipment must be a **dedicated space used only for utility metering** (i.e., not shared as a storage). It must meet the requirements of all applicable codes and ordinances, especially as related to accessibility and working space, and the Company's metering equipment installation specifications. In addition to other requirements, the meter room must satisfy all of the following:

    1. Entrance to the room must have warning signs "**Danger High Voltage**" and "**Authorized Personnel Only**".

    2. Interior lights and emergency lighting of one foot-candle for a minimum of 1.5 hours.

    3. Door swings outward and has a panic bar mechanism on the inside.

    4. Exit sign above the door on the inside.

    5. Room must be at least 5 feet wide and provide a minimum of 3 feet of clear working space in front of the metering equipment.

    6. Individual (non-ganged) meter bases installed at 4 1/2 to 5 1/2 feet from floor to center and separated 15" on center horizontally.

    7. When multiple rows of meters are used, the bottom row cannot be lower than 22 inches inside and 36 inches outside. The top row of meters must not be higher than 6 feet.

- If gas service meters are in the same metering room with electric service meters, there must be a minimum of 3 feet of separation between them.

- The customer shall provide Company personnel access to metering equipment **at all times**. If the Company does not have normal 24-hour

access to all Company facilities located in the building, provision for access shall be made by the customer in a manner acceptable to and approved by the Company. Options to provide access to the interior of the building include:

1. 24-hour access through keypad codes or similar equipment. Once provisions to access the interior of the building have been provided, the customer must provide access to individual metering rooms inside the building.

2. Each metering room has a key-box located adjacent to the door to the metering room with a Company lock securing access to the metering room door key, or similar security access.

- The customer shall furnish and install low-voltage feeders from the secondary terminals of the transformer to the grouped meter locations. Company conductors will not be located inside the buildings. If the quantity of customer conductors cannot be connected to the transformer spades, the customer will install a junction cabinet, or disconnect on the exterior of the building and the Company will bring our conductor to the junction cabinet/disconnect and install a Company padlock on the cabinet.

- Any low-voltage circuit protection required by NEC shall be provided by the customer.

- In situations where the available fault current will exceed 10,000 amps to any self-contained meter locations, the customer shall be responsible to install current limiting fuses on the supply side of the meter(s). Further, the customer's meter center and load center equipment must have a UL listed short circuit current rating in combination with the customer's selected current limiting fuse in excess of the available fault current. An appropriate customer representative shall provide suitable documentation to that effect.

- The Company will provide data on available fault current at the transformer secondary terminals to the customer, if requested.

- Failure to maintain a safe, accessible location for meters shall require that they be relocated to an appropriate location at the customer's expense.

G. Service and Equipment Identification

For commercial and multiple occupancy installations, the customer is required to permanently identify each meter socket. Permanent marking or identification should be approved by the Company as acceptable and must be on the customer's metering equipment and cover of the disconnecting devices. Numerals or letters of durable paint on laminated plastic and metal tags fasted securely are types of acceptable permanent identification. The use of pens, markers or paper tags is not acceptable and will not be approved by the Company. **(See Figure 3.)**

H. Meter Service Types

The following table below gives representation to the type of service and corresponding meter to be used with that service.
***This list does not guarantee the availability of a type of service. Some of these services are no longer offered.**

Service Configuration	0-200 Amps	201-400 Amps	> 400 Amps	CT/PT Required?
3-wire, 120/240V single-phase	Self-contained, Form 2S	Self-contained, 320 amp, Form 2S	IT-rated, 6-terminal, Form 4S	CT Yes, PT No
3-wire, 120/208V Network	Self-contained, 5-terminal, Form 12S, terminal installed at 9 o'clock position	Self-contained, 320 amp, 5-terminal, Form 12S	IT-rated, 8-terminal, Form 5S	CT Yes, PT No
4-wire, 240V high leg Delta, 3-phase	Self-contained, Form 16S	Self-contained, 320 amp, Form 16S	IT-rated, 13-terminal, Form 9S	CT Yes, PT No
4-wire, 120/208V Wye, 3-phase	Self-contained, Form 16S	Self-contained, 320 amp, Form 16S	IT-rated, 13-terminal, Form 9S	CT Yes, PT No
3-wire, 480V single-phase	IT-rated, 6-terminal, Form 4S	IT-rated, 6-terminal, Form 4S	IT-rated, 6-terminal, Form 4S	CT Yes, PT Yes
4-wire, 277/480V Wye, 3-phase	IT-rated,	IT-rated, 13-terminal,	IT-rated,	CT Yes, PT No

	13-terminal, Form 9S	Form 9S	13-terminal, Form 9S	
3-wire, 12470/7200V, Primary Overhead	n/a	n/a	n/a	CT Yes, PT Yes
12470/7200V Primary Overhead	n/a	n/a	n/a	CT Yes, PT Yes
12470/7200V Primary Underground	n/a	n/a	n/a	CT Yes, PT Yes

I. Pulse Outputs, Agreements and Load Management

- In some cases, larger commercial and industrial customers may request the ability to more closely monitor their energy consumption. Duke Energy offers special metering configurations where a pulse output is generated at specific intervals. Using technology, the pulse can be received and interpreted by customer-owned equipment. Customers interested in pulse metering should contact their assigned account manager for more information on availability, pricing and contract execution.

- Another service available to the customer is the online energy management system. This system collects load profile data from the customer's meter and makes it available online. While this system can provide customers with energy consumption information, the data is not real-time and generally lags by 24 hours.

J. Communications

Some metering locations will require the use of communications equipment. These types of installations are commonly found on larger commercial and industrial customers. The communications equipment is provided and maintained by the Company. The customer does not have access to the acquired data except as described in **"I"** of this section.

K. Overhead and Underground Primary Metering Installations

Duke Energy offers primary voltage metering. Customers should contact Distribution Engineering well before the required service date. Typical installations involve a pre-formed pole-mounted rack where the CT and PT instrumentation is installed. The electric meter is mounted below this rack. Underground installations will utilize a special pad-mounted metering cabinet with internal current and potential transformers connected to metering equipment at the exterior of the cabinet.

L. NET Metering

NET metering is a billing arrangement involving the interconnection of customer-owned renewable generation equipment in parallel with Duke Energy, as described in Duke Energy Standard Contract Rider No. 57, "Net Metering." Customer-owned generation may consist of but is not limited to solar panels or small wind turbines, and is used to offset a portion of the power consumed by the customer.

Customers interested in NET metering must apply for approval. The application can be found here:
https://www.duke-energy.com/business/products/renewables/

All NET metering installations must be approved by Field Metering. Once approved, the appropriate meter will be verified or installed by the Company. The meter base, disconnect and transformer/pole will be tagged by Field Metering with the correct identifying stickers and plaques signifying the potential for back-feed.

- Duke Energy Indiana's general rule for NET metering installations is that the load and the solar installation need to be behind one meter/service point on one customer premise address and sized not to exceed the annual kWh consumption of the customer. See **figure 110A**.

- The generation limit for NET metering is 1 megawatt (MW) AC nameplate rating or the total load of the service point, whichever is less. In situations where multiple accounts exist on the same premise, the customer can have multiple solar installations behind all or a select number of the service points providing the total AC nameplate rating does not exceed the lesser of 1 MW or the customer's consumption at the given premise.

- The generation facility and service point must be located at the same premise address.

- The meter enclosure and related equipment shall not be installed or attached to the renewable generation structure. A separate structure shall be installed by the customer, at customer expense.

- Customers with the potential to generate greater than 50 kW are required to make an appointment with Distribution Engineering to discuss the design prior to construction.

- In some cases, additional Company equipment or upgrades may be required due to the customer generation installation. These upgrades or changes may require additional customer expense under excess facilities tariff, Standard Contract Rider No. 53.

- A lockable, accessible AC disconnect with visible isolation is required on all generation equipment at the point of interconnection.

- All NET metering installations shall comply with all applicable state tariff and rider requirements.

- Once the NET metering application is approved, Duke Energy will verify or install the correct meter prior to activation of the generating facility. The customer should not activate generation until this step has been completed.

- All NET metering interconnections shall take place at the low-voltage secondary side of customer-owned equipment behind one single service point (metering point). Large customers with multiple service points may apply for NET metering at each service point/metering point.

- Under approval of the Company, a primary metered customer may interconnect primary generation BEHIND the primary meter point.

- Direct connections to the Duke Energy grid for the purposes of generation are not allowed for NET metering. NET metering connections are required to be made BEHIND the existing service point/meter except as noted in the following bullet point.

- The Company shall not install a new service point for the sole purpose of connecting customer generation. The only exception is for situations where Duke Energy Indiana has historically allowed a customer on a single premise to add consumption of more than one meter for purposes of billing under one account. In these situations, Duke Energy Indiana will similarly allow such customers to net the generation from a

separately metered renewable facility to the same account, if the solar installation is located on the same premise and sized not to exceed the load of the customer. This is the exception and not the rule, and is designed to be consistent with prior decisions made at the customer premise allowing adding consumption of more than one meter on one account. Customers will be responsible for all additional metering and interconnection costs to be paid for under the excess facilities tariff, Standard Contract Rider No. 53. The intent of this exception is to apply to existing accounts configured as indicated with added consumption, and not for new metering points to be added to allow a customer to fall within the exception.

- Virtual NET metering, installing renewable generation at one location and using it to offset consumption at another address, is not allowed.

- NET metering interconnections should take place on customer-owned equipment where available. If this is not possible, interconnection is acceptable at the load side of the meter base or CT cabinet. Please refer to **Figures 72A, 72B, 72C, 72D, 72G, 110A and 110B** to verify that the installation is in compliance with Duke Energy requirements.

PRINTABLE PAMPHLETS AVAILABLE AT END OF DOCUMENT.

DUKE ENERGY.

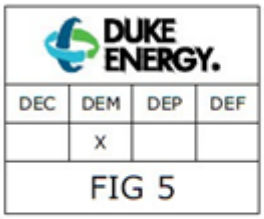
3					
2					
1					
0	9/21/18	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

SERVICE REQUIREMENTS FIGURES

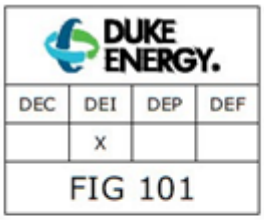
TABLE OF CONTENTS

DEC	DEI	DEP	DEF
	X		

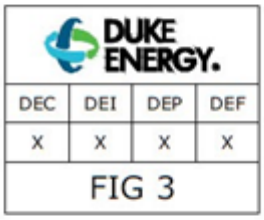
TOC A



THE INFORMATION IN THIS FIGURE WOULD BE APPLICABLE TO THE DEM AREA.



THE INFORMATION IN THIS FIGURE WOULD BE APPLICABLE TO THE DEI AREA ONLY.



THE INFORMATION IN THIS FIGURE WOULD BE APPLICABLE TO THE DEC, DEI, DEP, AND DEF AREAS.

NOTES:

1. THE IMAGES SHOWN ABOVE APPEAR IN THE LOWER RIGHT-HAND CORNER OF ALL FIGURES IN THIS MANUAL.
2. THE ACRONYMS ARE AS FOLLOWS:
   - DEC - DUKE ENERGY CAROLINAS (THE FORMER DUKE ENERGY SERVICE TERRITORY IN THE CAROLINAS)
   - DEM - DUKE ENERGY MIDWEST. INCLUDES:
     - DEI - DUKE ENERGY INDIANA
     - DEK - DUKE ENERGY KENTUCKY
     - DEO - DUKE ENERGY OHIO
   - DEP - DUKE ENERGY PROGRESS (THE FORMER PROGRESS ENERGY SERVICE TERRITORY IN THE CAROLINAS)
   - DEF - DUKE ENERGY FLORIDA
3. REFER TO PAGE 6 OF THIS DOCUMENT FOR A SERVICE TERRITORY MAP TO DETERMINE THE APPLICABLE AREA IN WHICH THE WORK IS BEING DONE (DEI).
4. AN 'X' BELOW THE JURISDICTION'S ACRONYM IN THE LEGEND INDICATES THAT THE DRAWING IN QUESTION IS APPLICABLE FOR THAT PARTICULAR AREA. SEE THE IMAGES ABOVE FOR FURTHER EXAMPLES.

REVISED		BY	CK'D	APPR.
3				
2				
1				
0	9/21/18	DIETERLE	BRUNS	ADCOCK

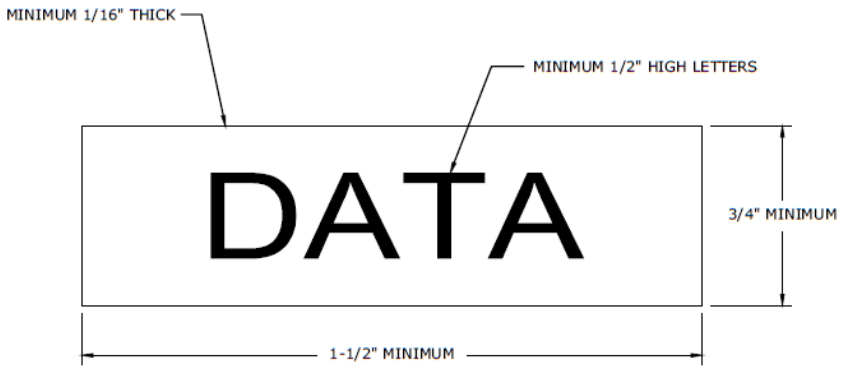
SERVICE REQUIREMENTS FIGURES

HOW TO APPLY THESE DRAWINGS

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

TOC B



NOTES:

1. ON INSTALLATIONS, REPAIRS, REPLACEMENTS OR UPGRADES OF ENCLOSURES INVOLVING MORE THAN ONE METER ON A SINGLE PREMISE, THE CUSTOMER SHALL CORRECTLY IDENTIFY EACH METER ENCLOSURE ON THE OUTSIDE BY A NONFERROUS METAL OR PLASTIC PLATE ENGRAVED OR STAMPED WITH THE APARTMENT NUMBER, OFFICE SUITE, LOT NUMBER, ETC.
2. THE PLATE SHALL BE PERMANENTLY ATTACHED TO THE METER ENCLOSURE UTILIZING AN INDUSTRIAL-STRENGTH ADHESIVE SUITABLE FOR EXTERIOR USE. TWO-SIDED TAPE IS NOT ACCEPTABLE.
3. THE INSIDE OF EACH METER ENCLOSURE SHALL BE CORRECTLY IDENTIFIED WITH A PLATE DESCRIBED ABOVE OR WITH A PERMANENT MARKER.

DUKE ENERGY.

3				
2				
1				
0	10/28/15	SIMPSON	EANES	CHANDLER
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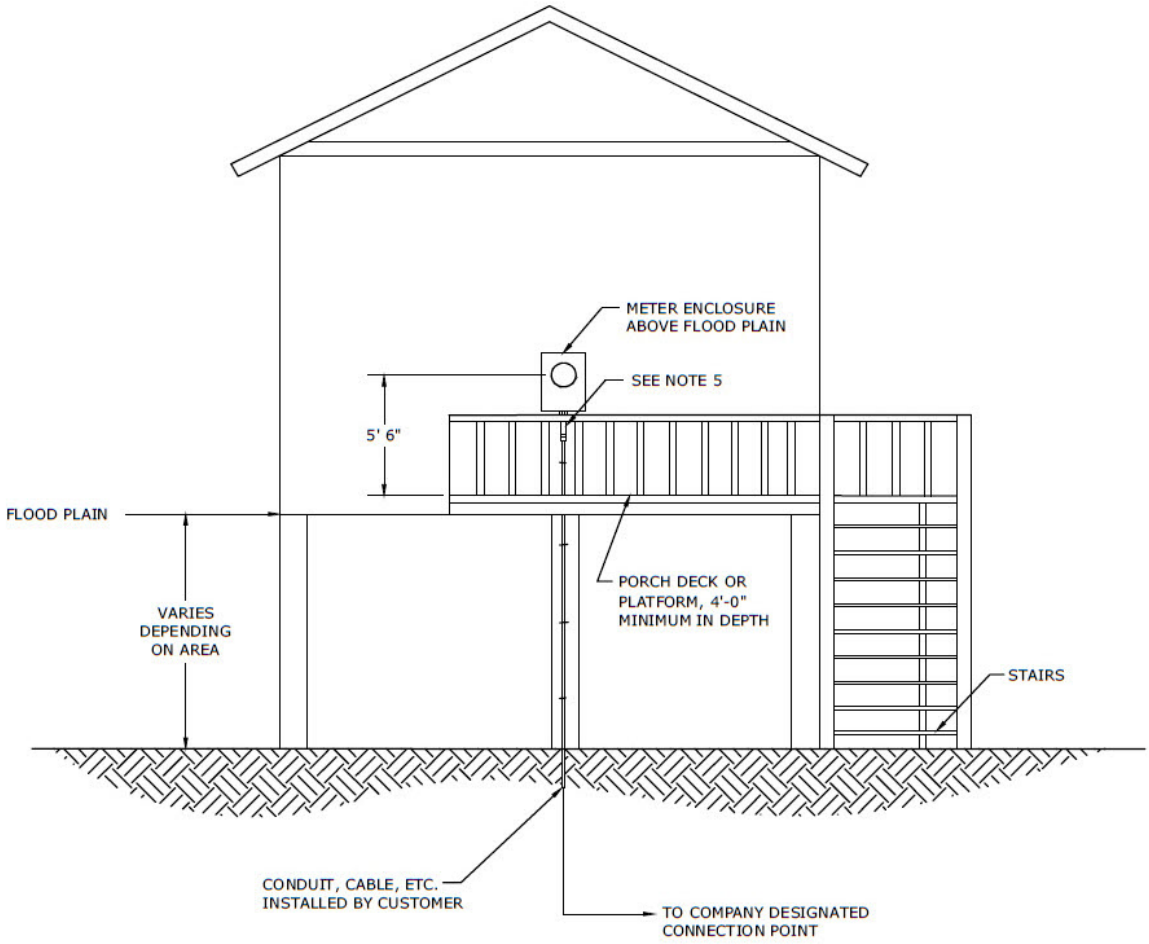
METERING ENCLOSURE LABELING

ON A SINGLE PREMISE

DEC	DEI	DEP	DEF
X	X	X	X

FIG 3



NOTES:

1. ELECTRICAL SERVICES IN FLOOD ZONES MUST BE ELEVATED ABOVE THE FLOOD PLAIN ELEVATION, AND ACCESS AND WORKING CLEARANCES MUST COMPLY WITH NEC ARTICLE 110.
2. ALL PLATFORM AND STAIR CONSTRUCTION SHALL BE PROVIDED BY THE CUSTOMER AS REQUIRED BY COMPANY AND MUST MEET ALL APPLICABLE BUILDING CODES.
3. NO SHIPS LADDERS OR HOMEMADE LADDERS WILL BE APPROVED.
4. CONDUIT (SCHEDULE 40), SERVICE RISER, ATTACHMENT MEANS AND SERVICE CONDUCTORS ARE TO BE PROVIDED AND INSTALLED BY CUSTOMER.
5. EXPANSION JOINT SHALL BE PROVIDED BY CUSTOMER.

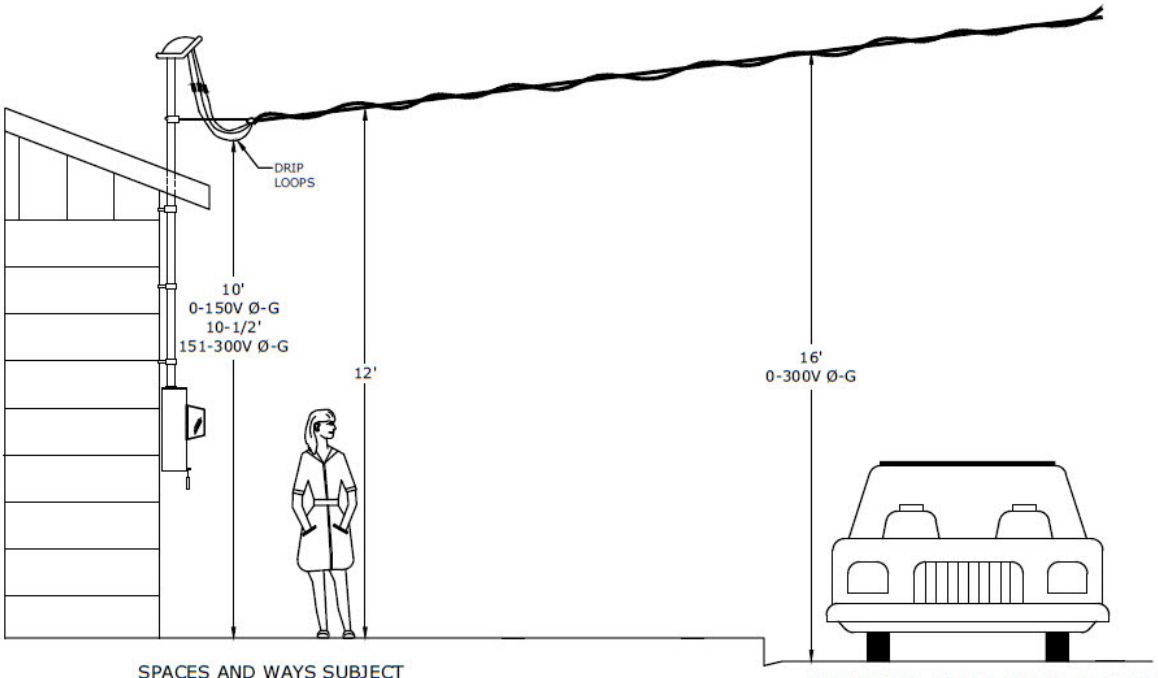
DUKE ENERGY.

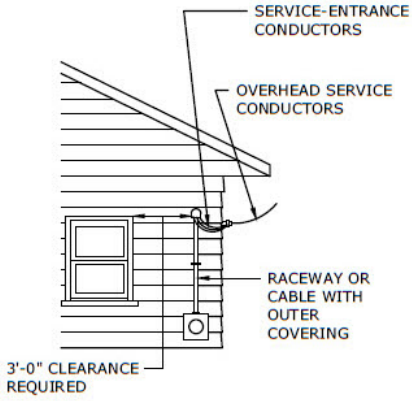
REVISED		BY	CK'D	APPR.
3				
2				
1	12/13/17	DIETERLE	BRUINS	ADCOCK
0	1/13/16	SIMPSON	EANES	CHANDLER

METER ENCLOSURE INSTALLATIONS
IN FLOOD ZONES

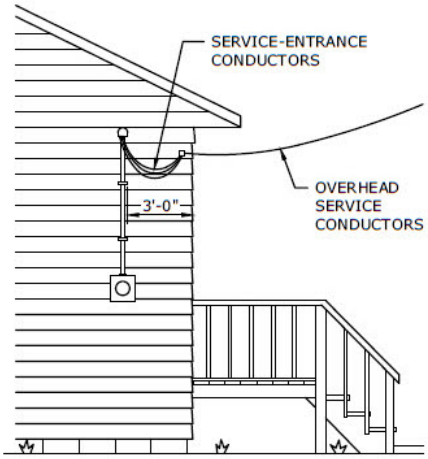
DEC	DEM	DEP	DEF
	X		

FIG 5





NEC ARTICLE 230



NOTES:

1. THE ABOVE ILLUSTRATIONS GIVE REQUIRED MINIMUM INSTALLATION HEIGHTS. THESE INSTALLATION HEIGHTS ARE APPLICABLE TO SERVICE DROP MULTIPLEX CABLES.
2. POINT OF ATTACHMENT OF SERVICE DROP AT BOTH BUILDING AND POLE MUST BE AT A HEIGHT SUFFICIENT TO ACHIEVE NESC REQUIRED MINIMUM CLEARANCES.
3. SERVICE HEAD SHALL BE LOCATED ABOVE THE POINT OF ATTACHMENT OF THE SERVICE DROP CONDUCTORS TO THE STRUCTURE. EXCEPTION: WHEN THIS IS NOT PRACTICABLE, IT MAY BE LOCATED NOT OVER 24" FROM POINT OF ATTACHMENT [SEE NEC ARTICLE 230.54].
4. CUSTOMER WILL PROVIDE POINT OF ATTACHMENT.

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3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	EANES	EANES	ADCOCK
0	10/28/15	SIMPSON	EANES	ADCOCK

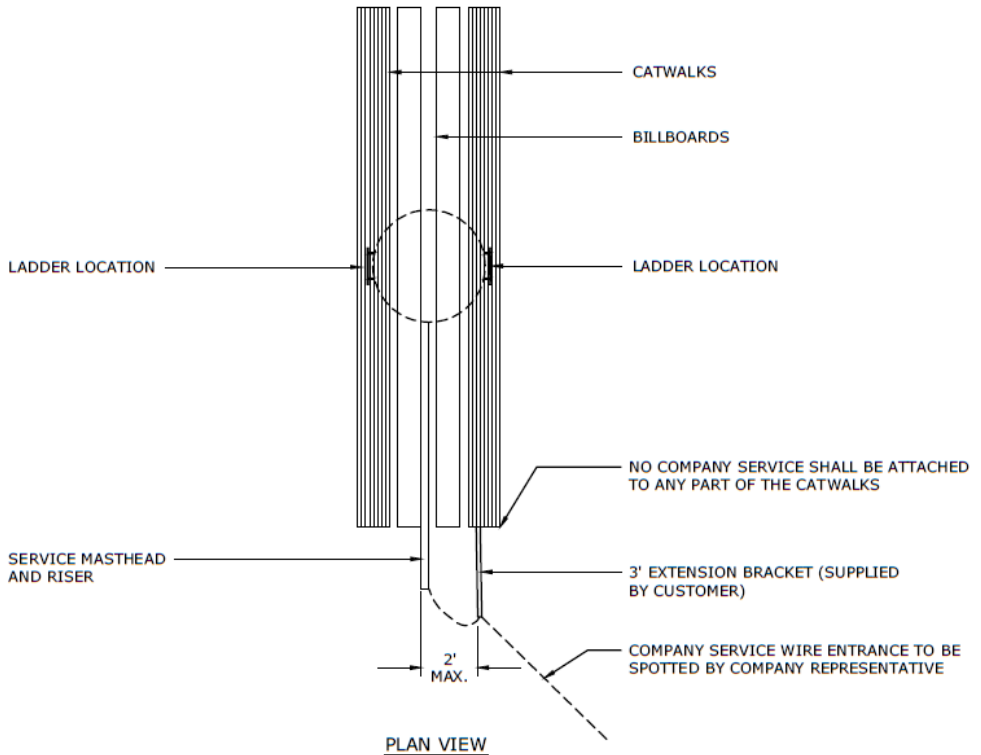
SERVICE DROP MINIMUM CLEARANCES

MAST ON BUILDING WALL

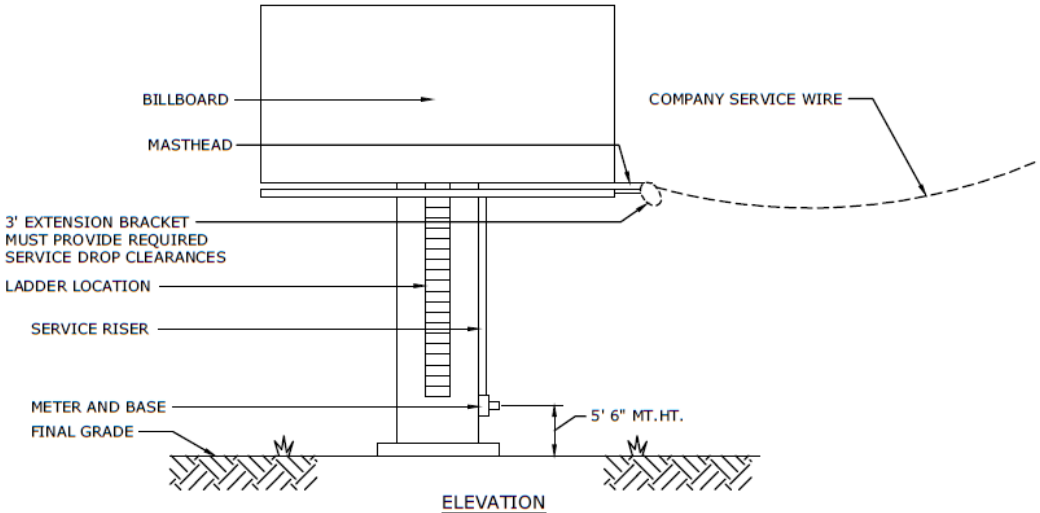
DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 11



PLAN VIEW



ELEVATION

NOTE:

1. DO NOT PROVIDE SERVICE TO SIGN WHICH DOES NOT HAVE CLEARANCES FROM ADJACENT OVERHEAD CONDUCTORS AS REQUIRED BY NESC AND ANY ADDITIONAL COMPANY SPECIFICATIONS.

DUKE ENERGY.

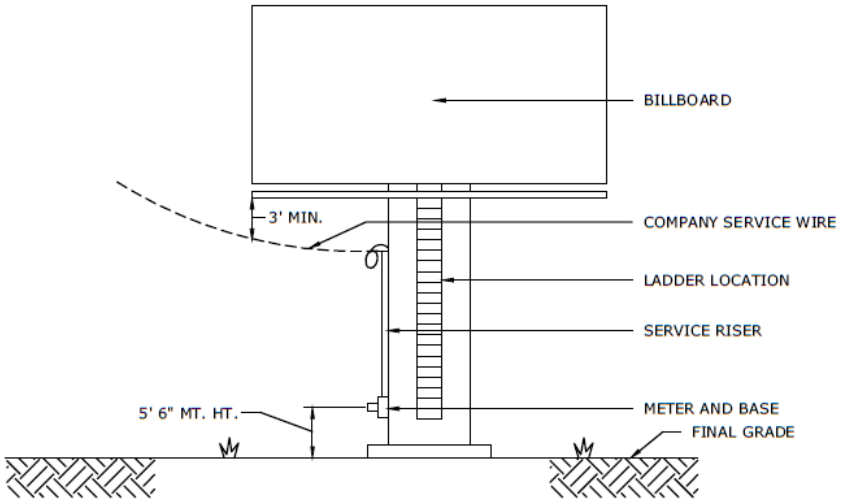
REVISED		BY	CK'D	APPR.
3				
2				
1	12/13/17	DIETERLE	BRUINS	ADCOCK
0	10/28/15	SIMPSON	SIMPSON	CHANDLER

BILLBOARD SERVICE ENTRANCE REQUIREMENTS

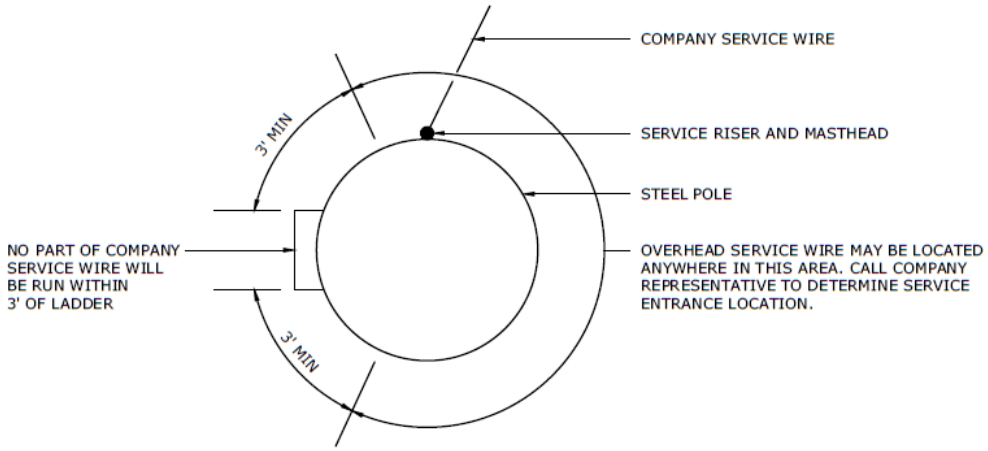
METHOD "A"

DEC	DEI	DEP	DEF
	X		

FIG 12



ELEVATION



PLAN

3				
2				
1	12/13/17	DIETERLE	BRUINS	ADCOCK
0	10/26/15	SIMPSON	EANES	ADCOCK
REVISED		BY	CK'D	APPR.

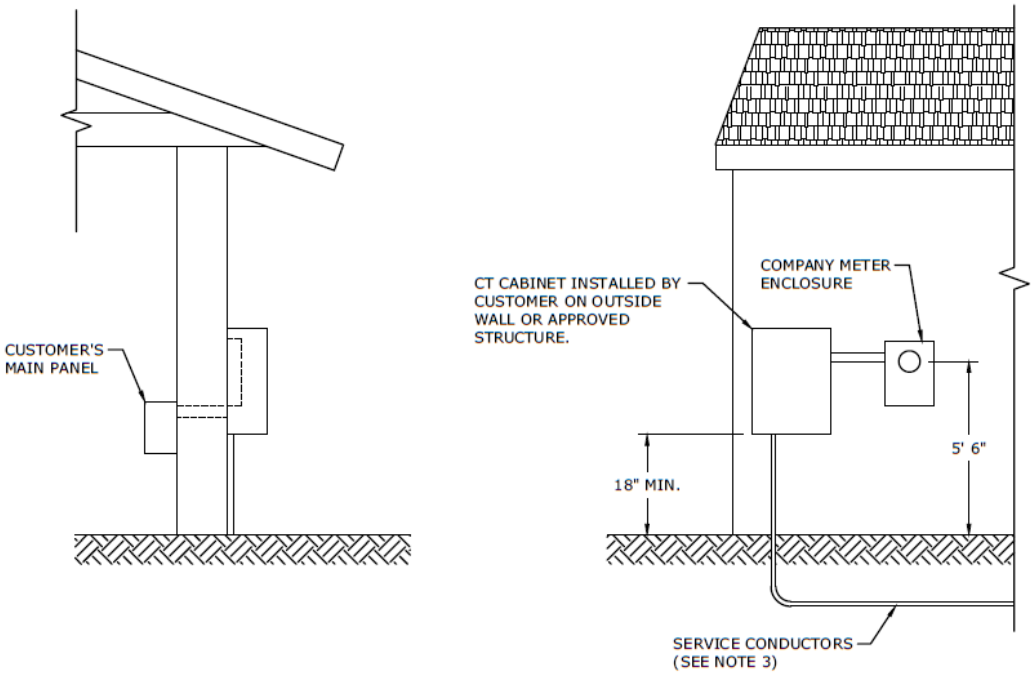
BILLBOARD SERVICE ENTRANCE REQUIREMENTS

METHOD "B"

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

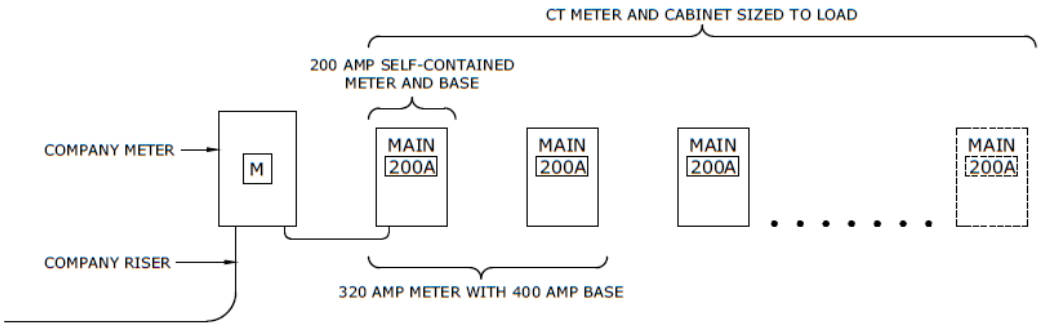
FIG 13



NOTES:

1. METER ENCLOSURE OWNED BY COMPANY.
2. CT CABINET OWNED BY COMPANY; INSTALLED BY CUSTOMER. SEE FIGURE 101.
3. SERVICE CONDUCTORS WILL BE INSTALLED BY THE COMPANY OR CUSTOMER DEPENDING ON THE ESTABLISHED SERVICE POINT AS SPECIFIED BY COMPANY REPRESENTATIVE.

TYPICAL FIELD APPLICATION OF SELF-CONTAINED VS. CT METERING SINGLE-PHASE AND THREE-PHASE



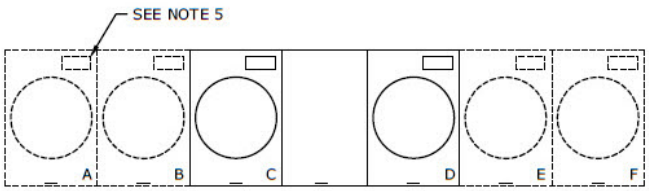
DUKE ENERGY.

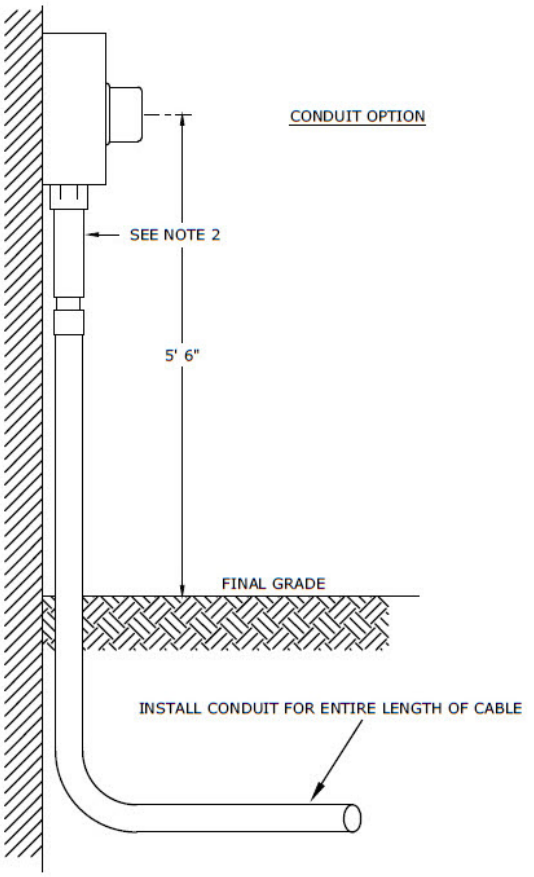
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	EANES	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER
REVISED		BY	CK'D	APPR.

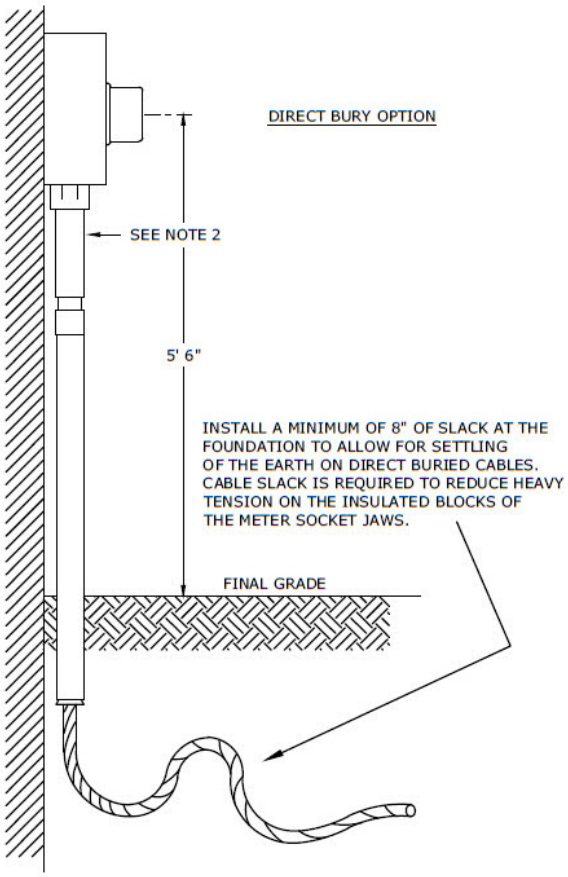
TYPICAL CURRENT TRANSFORMER CABINET AND METER ENCLOSURE INSTALLATION FOR UNDERGROUND SERVICES (SINGLE-PHASE AND THREE-PHASE)

DEC	DEI	DEP	DEF
	X		

FIG 21







NOTES:

1. APPROVED GANGED METER SOCKETS TO BE FURNISHED AND OWNED BY CUSTOMER. ELECTRICAL CONTRACTOR TO INSTALL ON OUTSIDE OF BUILDING WALL AND TO BOND TO NEUTRAL.
2. COMPANY TO INSTALL SERVICE RISER. KNOCKOUTS FOR RISER CONDUITS & EXPANSION JOINT SHALL BE PROVIDED BY CUSTOMER.
3. SERVICE POINT IS WHERE COMPANY CONDUCTORS ATTACH TO GANGED TERMINAL LUGS.
4. IF ANY OF THE INDIVIDUAL SERVICES REQUIRE A METER SOCKET GREATER THAN 200 AMP. CAPACITY, THEN A GANGED PANEL OF GREATER AMPACITY MUST BE USED.
5. LABELING OF EACH METER ENCLOSURE SHALL MEET THE REQUIREMENTS OF FIGURE 3.
6. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

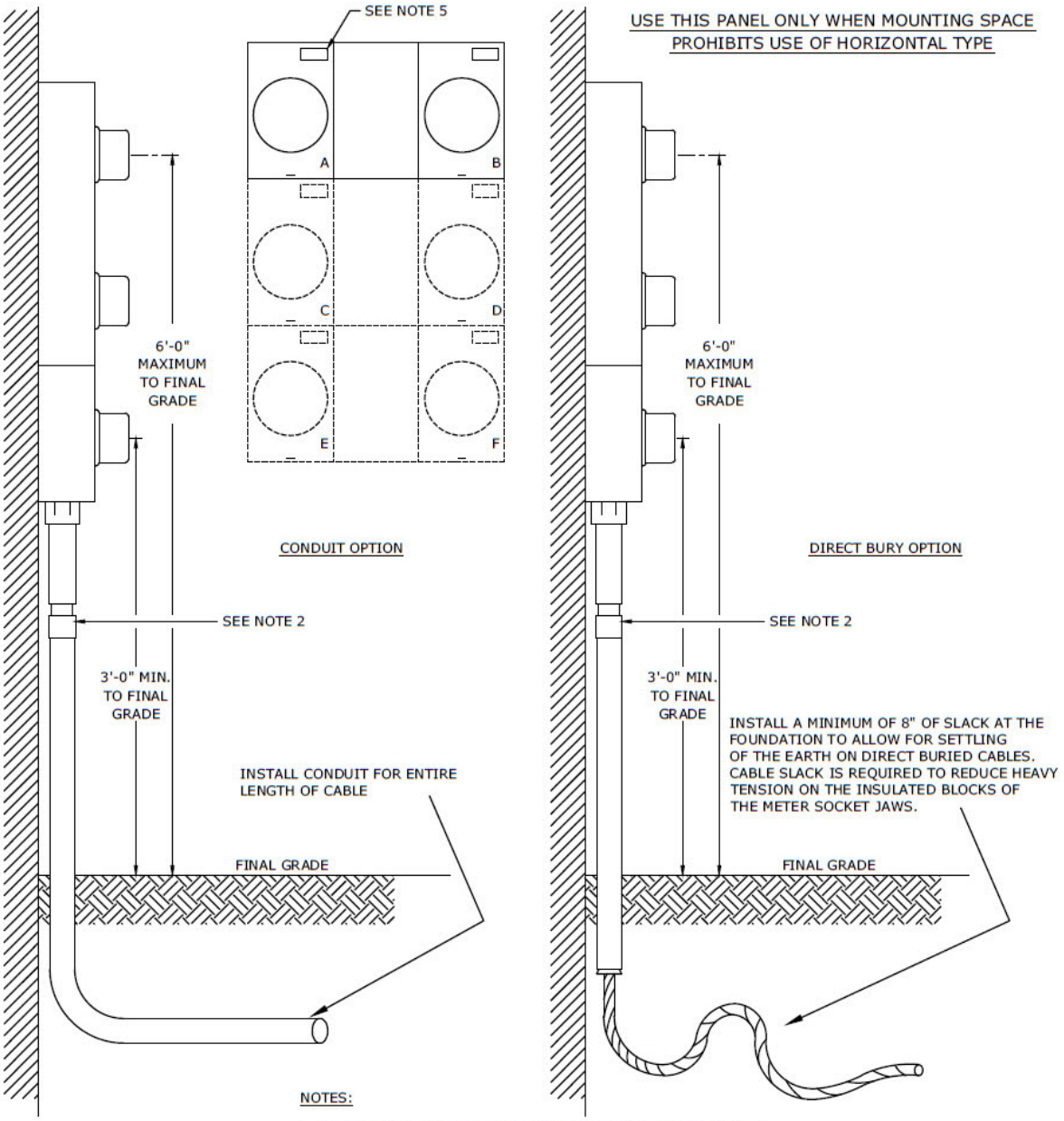
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3	11/15/18	DIETERLE	BRUINS	ADCOCK
2	**12/13/17**	DIETERLE	BRUINS	ADCOCK
1	2/21/17	EANES	EANES	ADCOCK
0	1/5/15	SIMPSON	EANES	CHANDLER

HORIZONTAL GANGED METERING INSTALLATION
(2 - 6 METERS)
SINGLE-PHASE

DEC	DEI	DEP	DEF
	X		

FIG 25



NOTES:

1. APPROVED METER SOCKETS TO BE FURNISHED AND OWNED BY THE CUSTOMER. ELECTRICAL CONTRACTOR TO INSTALL ON THE THE OUTSIDE OF THE BUILDING WALL AND TO BOND TO NEUTRAL.
2. COMPANY TO INSTALL SERVICE RISER. KNOCKOUTS FOR RISER CONDUITS & EXPANSION JOINT SHALL BE PROVIDED BY CUSTOMER.
3. SERVICE POINT IS WHERE COMPANY CONDUCTORS ATTACHED TO GANGED TERMINAL LUGS.
4. IF ANY OF THE INDIVIDUAL SERVICES REQUIRE A METER SOCKET GREATER THAN 200 AMP. CAPACITY, THEN A GANGED PANEL OF GREATER AMPACITY MUST BE USED.
5. LABELING OF EACH METER ENCLOSURE SHALL MEET THE REQUIREMENTS OF FIGURE 3.
6. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

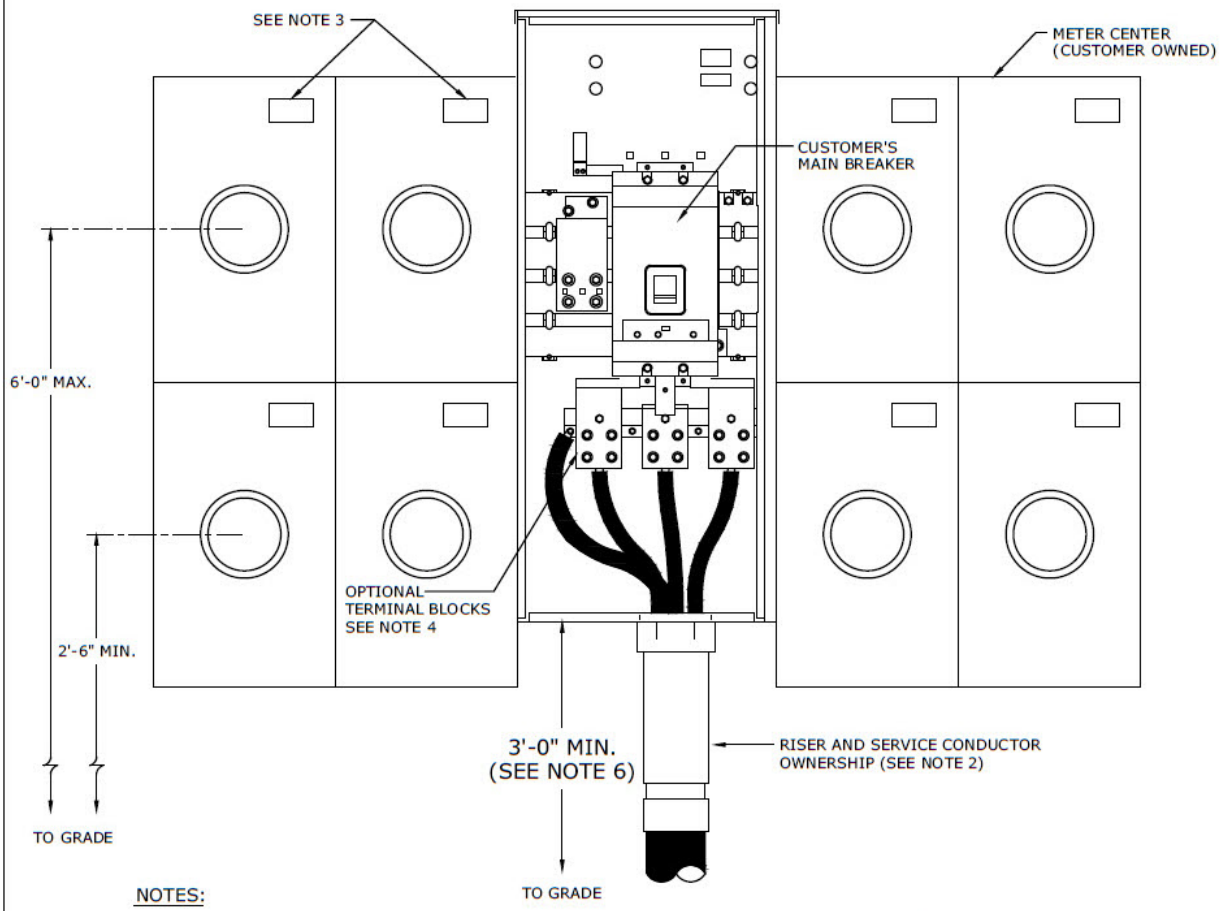
REVISED		BY	CK'D	APPR.
3	11/15/18	DIETERLE	BRUINS	ADCOCK
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	BANES	BANES	ADCOCK
0	1/5/16	SIMPSON	BANES	CHANDLER

VERTICAL GANGED METERING INSTALLATION
(2 - 6 METERS)
SINGLE-PHASE

DUKE ENERGY.

DEC	DEI	DEP	DEF
X	X	X	

FIG 26



NOTES:

1. U.L. LISTED METER CENTER TO BE FURNISHED AND OWNED BY THE CUSTOMER. ELECTRICAL CONTRACTOR TO INSTALL ON THE OUTSIDE OF THE BUILDING WALL AND TO BOND TO NEUTRAL.

2. SERVICE RISER AND CONDUCTOR OWNERSHIP:

   A. SERVICE RISER: CUSTOMER
   B. SERVICE CONDUCTOR: THE COMPANY
   C. EXPANSION JOINT: CUSTOMER

3. LABEL EACH SOCKET COVER AS SHOWN IN FIGURE 3.

4. SERVICE POINT:

   A. SINGLE-PHASE SERVICES: SERVICE POINT WILL BE WHERE COMPANY CONDUCTORS ATTACH TO MAIN DISCONNECT. IF LOCAL INSPECTION AUTHORITY OBJECTS TO COMPANY CABLES IN UL RATED TERMINALS OF MAIN BREAKER, THE CUSTOMER WILL PROVIDE THE APPROPRIATE TERMINAL BLOCKS OFF THE BREAKER TO ATTACH COMPANY CABLES. TERMINAL BLOCKS MUST BE SIZED 3/0-500 KCMIL AL OR CU MINIMUM, DOUBLE LUGGED IF NECESSARY TO ACCOMMODATE COMPANY SERVICE.
   B. THREE-PHASE SERVICES: FOR THE SERVICE POINT, CONTACT THE COMPANY REPRESENTATIVE.

5. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

6. IF MINIMUM HEIGHT ABOVE GRADE CANNOT BE OBTAINED, LOWER HEIGHTS WILL BE ALLOWED WITH CERTAIN PROVISIONS. CUSTOMER MUST PROVIDE AND INSTALL SCHEDULE 40 PVC BENDS WITH A MINIMUM 36" RADIUS (QUANTITY AND SIZE DETERMINED BY COMPANY REPRESENTATIVE) AND A PULL STRING. APPROPRIATE METER HEIGHTS MUST STILL BE MAINTAINED IN ALL CASES. CONDUCTOR TERMINAL BLOCKS OR MAIN BREAKER MUST BE OF SUFFICIENT HEIGHT TO ALLOW FOR PROPER TRAINING OF CABLE.

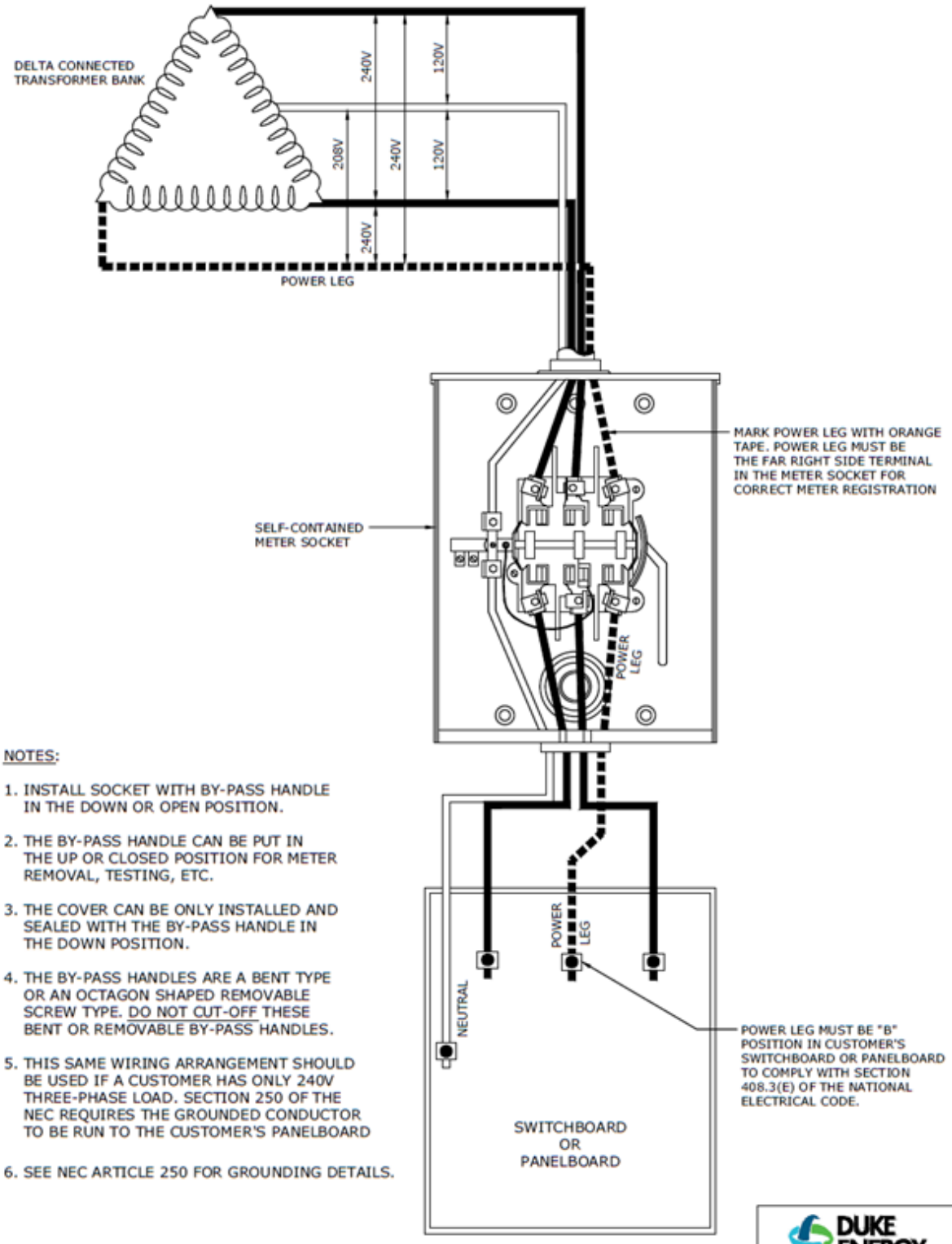
3				
2				
1	11/15/18	DIETERLE	BRUINS	ADCOCK
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

METER CENTER INSTALLATION
(MAIN DISCONNECT - GREATER THAN 6 METERS)
SINGLE AND THREE-PHASE

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 27



NOTES:

1. INSTALL SOCKET WITH BY-PASS HANDLE IN THE DOWN OR OPEN POSITION.
2. THE BY-PASS HANDLE CAN BE PUT IN THE UP OR CLOSED POSITION FOR METER REMOVAL, TESTING, ETC.
3. THE COVER CAN BE ONLY INSTALLED AND SEALED WITH THE BY-PASS HANDLE IN THE DOWN POSITION.
4. THE BY-PASS HANDLES ARE A BENT TYPE OR AN OCTAGON SHAPED REMOVABLE SCREW TYPE. DO NOT CUT-OFF THESE BENT OR REMOVABLE BY-PASS HANDLES.
5. THIS SAME WIRING ARRANGEMENT SHOULD BE USED IF A CUSTOMER HAS ONLY 240V THREE-PHASE LOAD. SECTION 250 OF THE NEC REQUIRES THE GROUNDED CONDUCTOR TO BE RUN TO THE CUSTOMER'S PANELBOARD
6. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

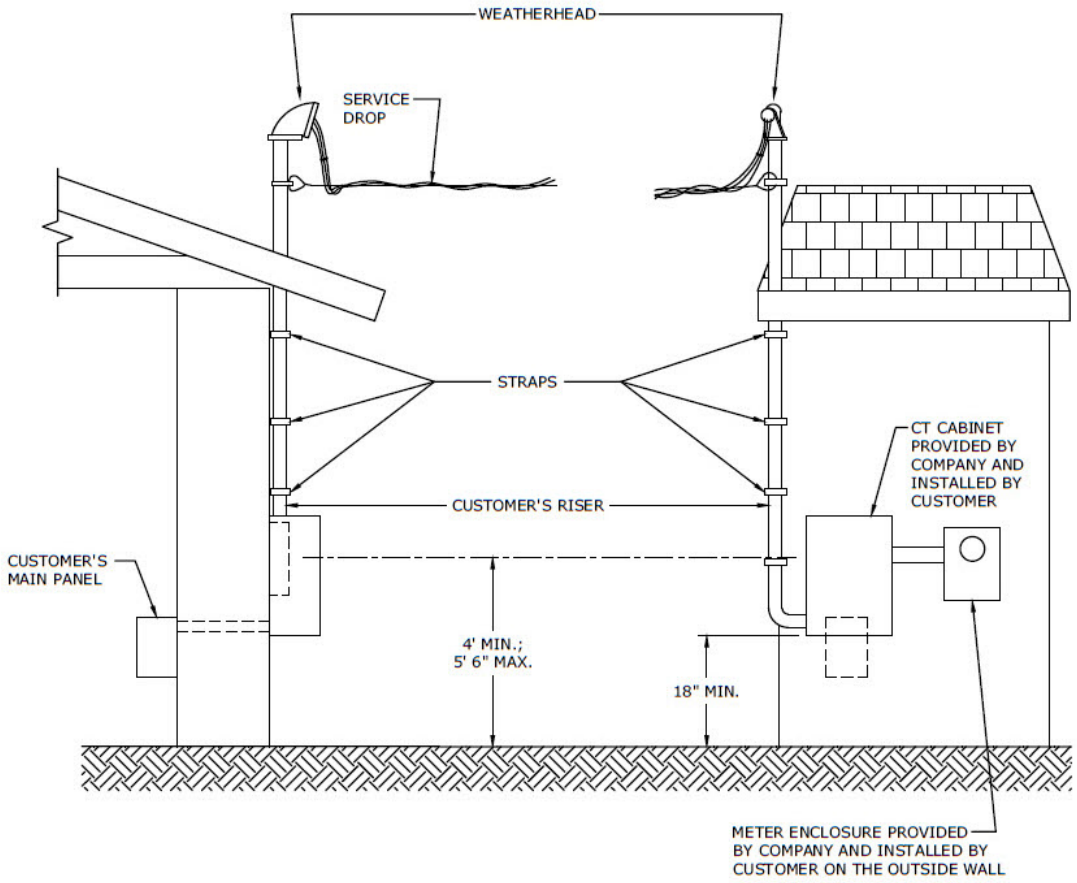
REVISED	BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUENS	ADCOCK
1	2/21/17	EANES	EANES	ADCOCK
0	10/28/15	SIMPSON	EANES	CHANDLER

240/120V THREE-PHASE 4 WIRE
SELF-CONTAINED DELTA METERING

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X	X	

FIG 32



NOTES:

1. METER ENCLOSURE AND CT CABINET OWNED BY COMPANY INSTALLED BY CUSTOMER ON OUTSIDE WALL OR APPROVED STRUCTURE. SEE FIGURE 101.
2. METER ENCLOSURE AND ASSOCIATED METER CABINETS SHALL BE BONDED TO GROUND AS REQUIRED BY THE NEC, AUTHORITY HAVING JURISDICTION AND THE COMPANY.
3. CT'S MAY NOT BE MOUNTED ON MASTS OR POLES UNLESS APPROVED BY THE COMPANY
4. MAXIMUM NUMBER OF 2 OVERHEAD RISERS INTO A SINGLE CT CABINET.
5. MAXIMUM RISER SIZE 3".
6. 3' - 0" CLEARANCE REQUIRED FROM WINDOWS, DOORS, PORCHES, DECKS, FIRE ESCAPES, OR SIMILAR LOCATIONS. SEE NEC ARTICLE 230.

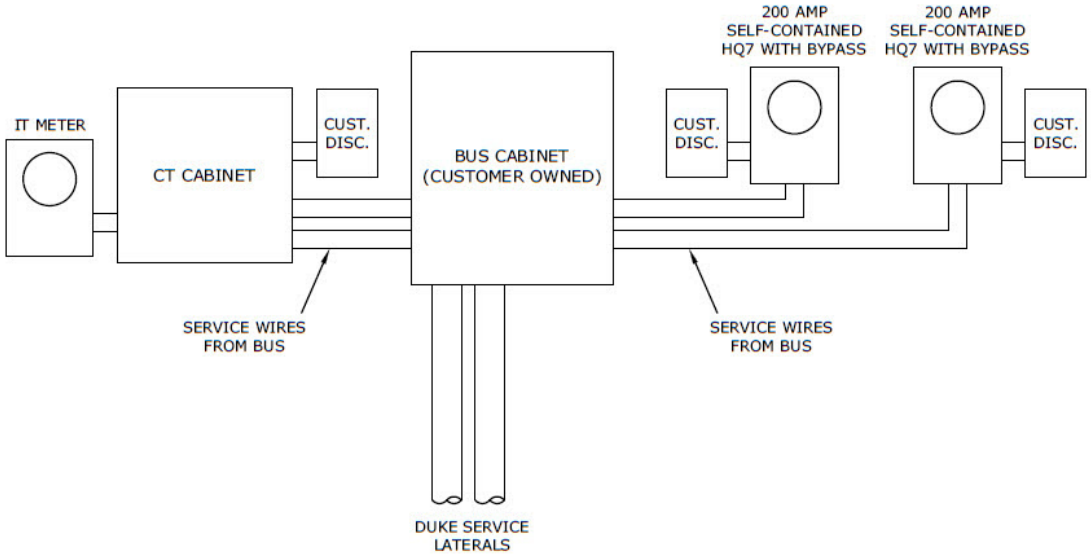
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3				
2				
1	12/13/17	DIETERLE	BRUINS	ADCOCK
0	3/2/17	DANNA	EANES	ADCOCK

TYPICAL CURRENT TRANSFORMER CABINET AND METER ENCLOSURE INSTALLATION FOR OVERHEAD SERVICES FOR 120/208V, 120/240V, 277/480V

DEC	DEI	DEP	DEF
	X		

FIG 44



NOTES:

1. CAN HAVE COMBINATION OF MULTIPLE CT/SELF-CONTAINED SERVICES FROM BUS LIMITED BY BUS AMPACITY.
2. CAN HAVE MULTIPLE CT CABINETS FED FROM BUS.
3. CAN HAVE MULTIPLE SELF-CONTAINED METER BASES FED FROM BUS.
4. NUMBER OF SERVICE LATERALS IS DETERMINED BY BUS AMPACITY.

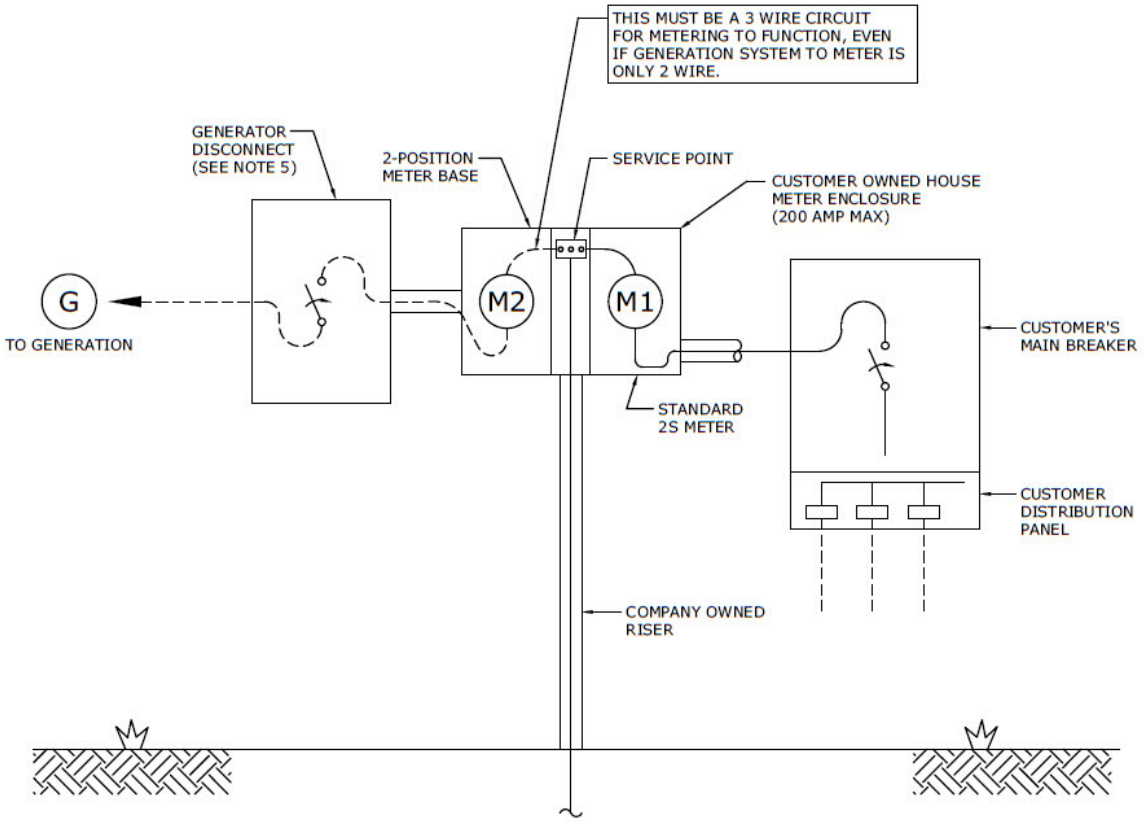
DUKE ENERGY.

3				
2				
1				
0	4/30/19	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

COMBINATION CT RATED AND SELF-CONTAINED FROM SAME BUS (REPLACE WIREWAYS)

DEC	DEI	DEP	DEF
	X		

FIG 47



NOTES:

1. USE THIS WIRING METHOD FOR A SMALL POWER PRODUCER (USUALLY A PHOTOVOLTAIC SYSTEM) WHO SELLS ENTIRE OUTPUT OF GENERATION TO DUKE ENERGY.
2. PREFERRED CONFIGURATION FOR 200 AMP HOUSE SERVICE IS A 2-POSITION METER BASE AS SHOWN ABOVE. IF THE HOUSE SERVICE REQUIRES A 320 AMP METER, THEN A SEPARATE WIREWAY AND TWO SEPARATE METER BASES ARE REQUIRED (SEE FIGURE 64). THE HOUSE METER BASE SHALL BE RATED 320 AMPS AND THE GENERATION SYSTEM METER BASE SHALL BE RATED 200 AMPS. COMPANY TO CONNECT CONDUCTORS IN WIREWAY USING CONNECTOR BLOCKS.
3. FOR SELL ALL METERS, METERING WILL INSTALL A BI-DIRECTIONAL METER.
4. ALL SMALL POWER PRODUCER INSTALLATIONS SHALL HAVE WARNING LABELS PLACED AT METER AND AT GENERATOR DISCONNECT.
5. CUSTOMER OWNED DISCONNECT MUST BE ADJACENT TO METER, LOAD-BREAK RATED, LOCKABLE IN **OPEN** POSITION AND PROVIDE A "VISIBLE OPENING".
6. **FOR DEP**, GENERATOR DISCONNECT FOR LOADS LESS THAN OR EQUAL TO 10KW CAN BE LOCATED OTHER THAN ADJACENT TO THE GENERATION METER AS LONG AS NEC IS MET.
7. **FOR DEC & DEI**, GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.

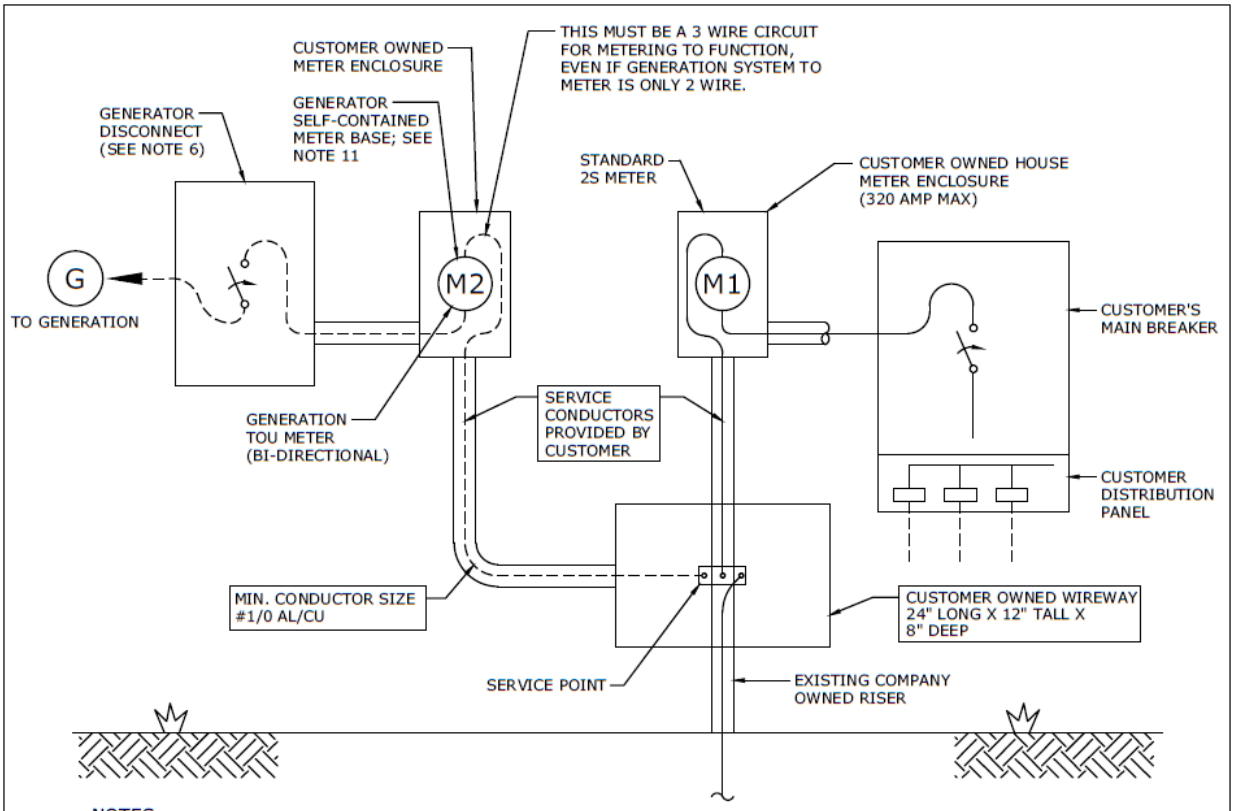
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

SELL ALL GENERATION - SINGLE-PHASE
SELF-CONTAINED PREFERRED CONFIGURATION SERVICE
ADDING GENERATION METER, SELF-CONTAINED
NC, SC, & INDIANA

DEC	DEI	DEP	DEF
X	X	X	

FIG 63



NOTES:

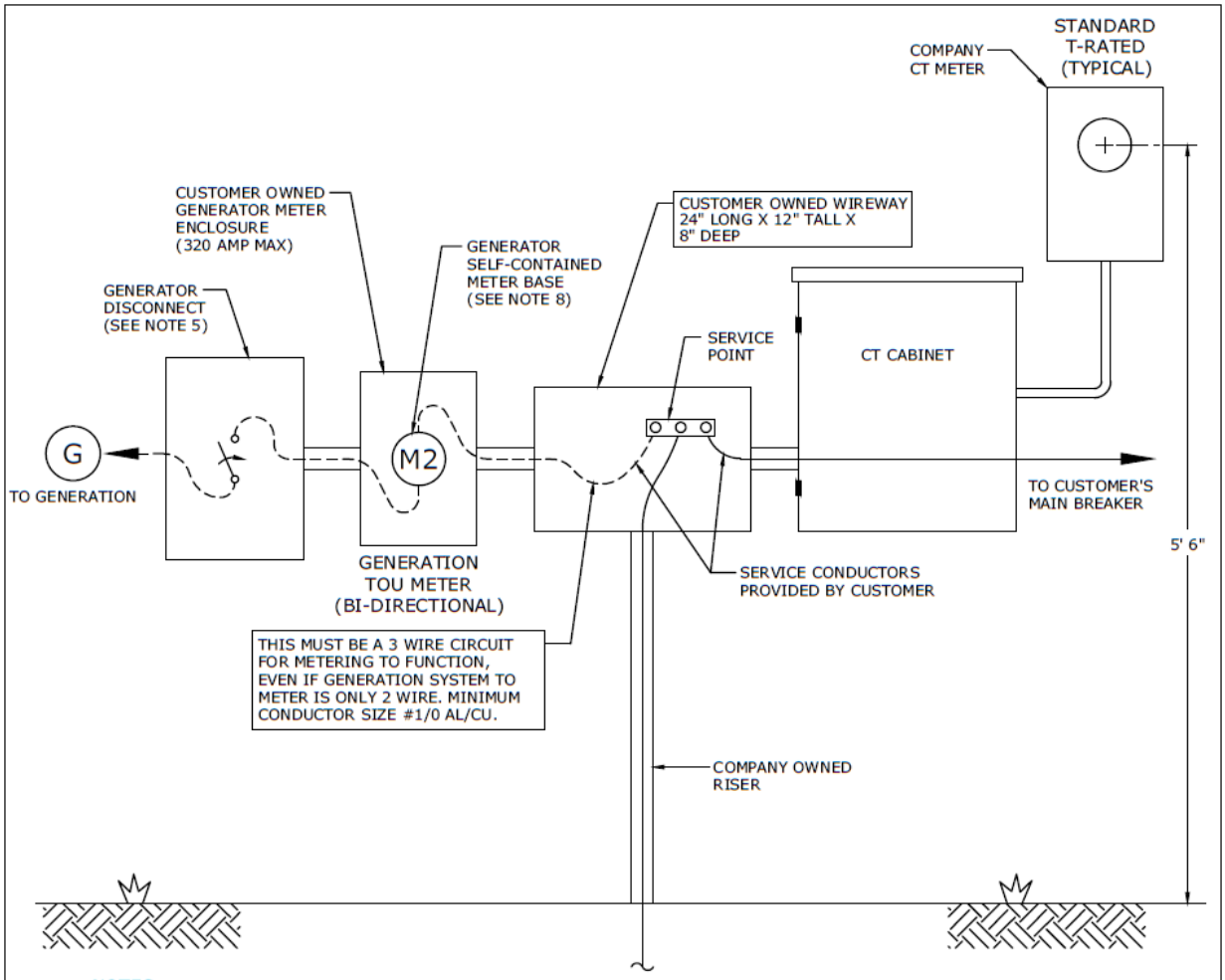
1. USE THIS WIRING METHOD FOR A SMALL POWER PRODUCER (USUALLY A PHOTOVOLTAIC SYSTEM) WHO SELLS ENTIRE OUTPUT OF GENERATION TO COMPANY.
2. FOR SELL ALL CONFIGURATIONS, A BI-DIRECTIONAL METER WILL BE INSTALLED.
3. ALL SMALL POWER PRODUCER INSTALLATIONS SHALL HAVE WARNING LABELS PLACED AT METER AND AT GENERATOR DISCONNECT.
4. CUSTOMER'S ELECTRICIAN MUST MAKE ARRANGEMENTS WITH COMPANY FOR A CLEARANCE ON EXISTING SERVICE, REMOVE COMPANY-OWNED RISER, INSTALL WIREWAY AND RECONNECT RISER ABOVE AND BELOW WIREWAY.
5. COMPANY TO CONNECT CONDUCTORS IN WIREWAY USING CONNECTOR BLOCKS.
6. CUSTOMER OWNED DISCONNECT MUST BE ADJACENT TO METER, LOAD-BREAK RATED, LOCKABLE IN **OPEN** POSITION AND PROVIDE A "VISIBLE OPENING".
7. **FOR DEP**, GENERATOR DISCONNECT FOR LOADS LESS THAN OR EQUAL TO 10KW CAN BE LOCATED OTHER THAN ADJACENT TO THE GENERATION METER AS LONG AS NEC IS MET.
8. **FOR DEC & DEI**, GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
9. PREFERRED CONFIGURATION FOR 200 AMP HOUSE SERVICE AND 200 AMP PV LOAD IS A 2-GANG METER ENCLOSURE AS SHOWN IN FIGURE 63, BUT CUSTOMER MAY USE THIS ALTERNATE CONFIGURATION AS AN OPTION. IF HOUSE SERVICE IS 320 AMP, THEN THIS ALTERNATE CONFIGURATION MUST BE UTILIZED FOR GENERATION CONNECTION.
10. FOR VERY CONFINED SPACES (NO ROOM FOR WIREWAY), CUSTOMER CAN INSTALL DOUBLE LUGS ON SOURCE SIDE OF METER ENCLOSURE (SIZE #4 - 500 KCMIL) FOR COMPANY CONDUCTORS AND SIZED TO FIT GENERATOR CONDUCTORS.
11. A GENERATOR SELF-CONTAINED METER BASE IS REQUIRED WHEN THE LARGEST SIZED GENERATION PROTECTION DEVICE DOES NOT EXCEED 400 AMPS. LOCATE ADJACENT TO ELECTRIC SERVICE METER.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	2/1/16	SIMPSON	MEDLIN	CHANDLER

SELL ALL GENERATION - SINGLE-PHASE
SELF-CONTAINED ALTERNATE CONFIGURATION SERVICE
ADDING GENERATION METER, SELF-CONTAINED
NC, SC, & INDIANA

DEC	DEI	DEP	DEF
X	X	X	

FIG 64



NOTES:

1. USE THIS WIRING METHOD FOR A SMALL POWER PRODUCER (USUALLY A PHOTOVOLTAIC SYSTEM) WHO SELLS ENTIRE OUTPUT OF GENERATION TO COMPANY.
2. COMPANY TO CONNECT CONDUCTORS IN WIREWAY USING CONNECTOR BLOCKS SHOWN ON FIGURE 21.
3. FOR SELL ALL METERS, METERING WILL INSTALL A STANDARD METER PROGRAMMED FOR SGS-TOU WITH ALL DATA REGISTERED AS RECEIVED.
4. ALL SMALL POWER PRODUCER INSTALLATIONS SHALL HAVE WARNING LABELS PLACED AT METER AND AT GENERATOR DISCONNECT.
5. CUSTOMER OWNED DISCONNECT MUST BE ADJACENT TO METER, LOAD-BREAK RATED, LOCKABLE IN **OPEN** POSITION AND PROVIDE A "VISIBLE OPENING".
6. GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
7. FOR EXISTING UG T-RATED SERVICE, CUSTOMER'S ELECTRICIAN MUST MAKE ARRANGEMENTS WITH COMPANY FOR A CLEARANCE ON EXISTING SERVICE, REMOVE COMPANY SERVICE RISER, INSTALL WIREWAY AND RISER TO CT CABINET. SERVICE POINT IN WIREWAY.
8. A GENERATOR SELF-CONTAINED METER BASE IS REQUIRED WHEN THE LARGEST SIZED GENERATION PROTECTION DEVICE DOES NOT EXCEED 400 AMPS. LOCATE ADJACENT TO ELECTRIC SERVICE METER.

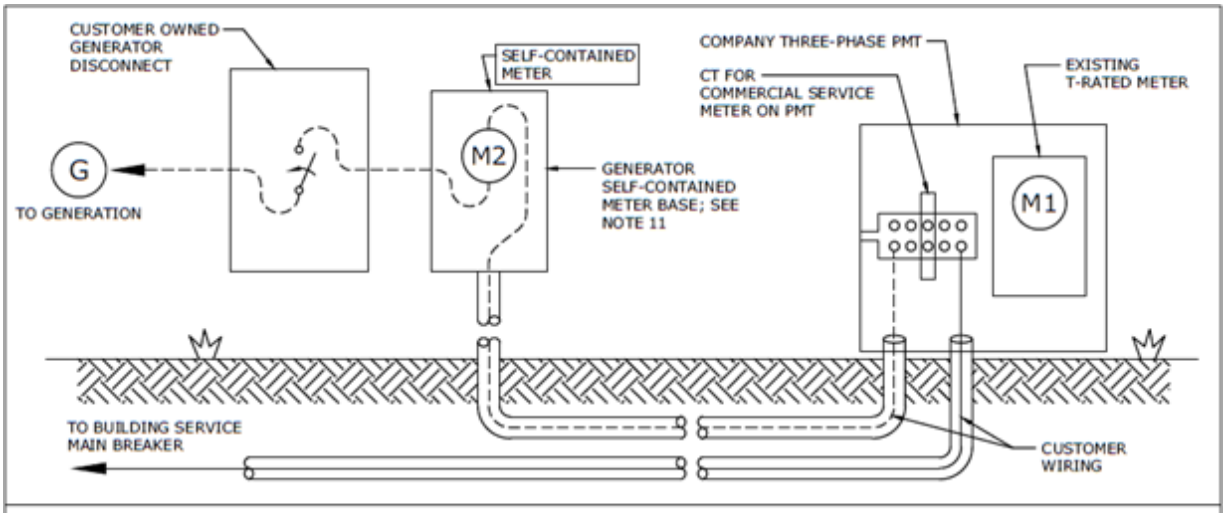
DUKE ENERGY.

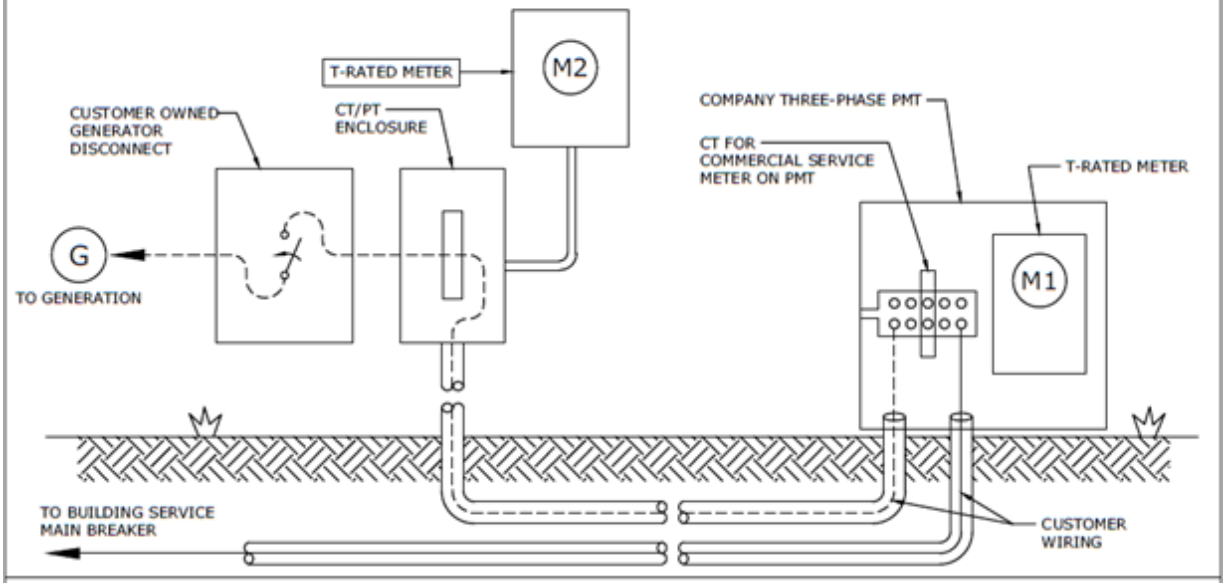
REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

SELL ALL GENERATION
SINGLE-PHASE T-RATED SERVICE
ADDING GENERATION METER, SELF-CONTAINED

DEC	DEI	DEP	DEF
	X		

FIG 65





NOTES:

1. CUSTOMER MAIN SERVICE IS METERED ON PMT. GENERATION SERVICE IS METERED ON BUILDING AND WIRING PULLED TO PMT AND CONNECTED ON SOURCE SIDE OF CT'S IN PMT AS SHOWN.
2. TOTAL NUMBER OF CONDUCTORS (COMPANY AND CUSTOMER) CANNOT EXCEED 8 CONDUCTORS.
3. MAXIMUM CUSTOMER CONDUCTOR SIZE IS 750 KCM AL/CU.
4. BOTH ENDS OF ALL CUSTOMER CABLES MUST BE CLEARLY AND SPECIFICALLY MARKED FOR PHASE AND LABELED WITH A TAG TO IDENTIFY THE LOCATION OF THE SOURCE AND LOAD ENDS OF THE CONDUCTOR. THE LOAD END OF EACH CABLE SHALL BE LABELED TO IDENTIFY THE SOURCE. EACH SOURCE END SHALL BE LABELED TO IDENTIFY THE LOCATION OF THE LOAD END OF THE CABLE (WIREWAY NUMBER, SWITCH PANEL NUMBER, ETC.). METER ENCLOSURE MUST BE LABELED PER FIGURE 3.
5. GENERATOR KVA CAPACITY CANNOT EXCEED KVA RATING OF PMT FOR T-RATED SERVICE OR 12KW FOR NETWORK SELF-CONTAINED METER.
6. WARNING LABEL TO BE PLACE AT METER AND CUSTOMER DISCONNECT.
7. SINGLE LINE CONDUCTOR SHOWN FOR CLARITY.
8. CUSTOMER OWNED DISCONNECT MUST BE ADJACENT TO METER, LOAD-BREAK RATED, LOCKABLE IN OPEN POSITION AND PROVIDE A "VISIBLE OPENING". EXCEPTION: FOR FEEDER DISCONNECTS RATED ≥1000 AMPS AT 480Y/277 VOLTS, NO VISIBLE OPEN IS REQUIRED, BUT ALL OTHER PROVISIONS MUST BE MET.
9. GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
10. "SNAKING" OF CUSTOMER WIRING THRU EXISTING CT'S IS NOT ALLOWED.
11. A GENERATOR SELF-CONTAINED METER BASE IS REQUIRED WHEN THE LARGEST SIZED GENERATION PROTECTION DEVICE DOES NOT EXCEED 400 AMPS. LOCATE ADJACENT TO ELECTRIC SERVICE METER.

DUKE ENERGY.

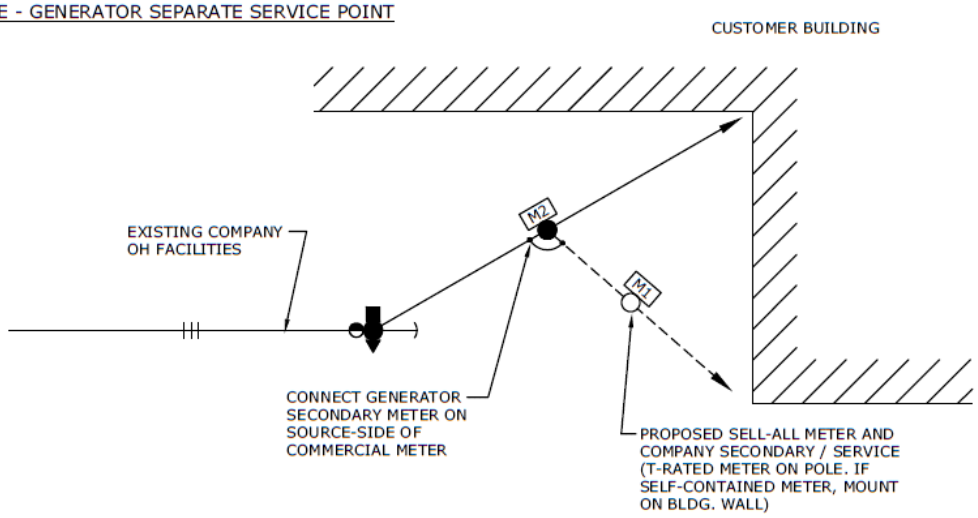
REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BAUBNS	ADCOCK
1	2/2/17	ARCHER	BANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

SELL ALL GENERATION
THREE-PHASE LARGE T-RATED EXISTING UG SERVICE
ADDING GENERATION METER, T-RATED OR
SELF-CONTAINED

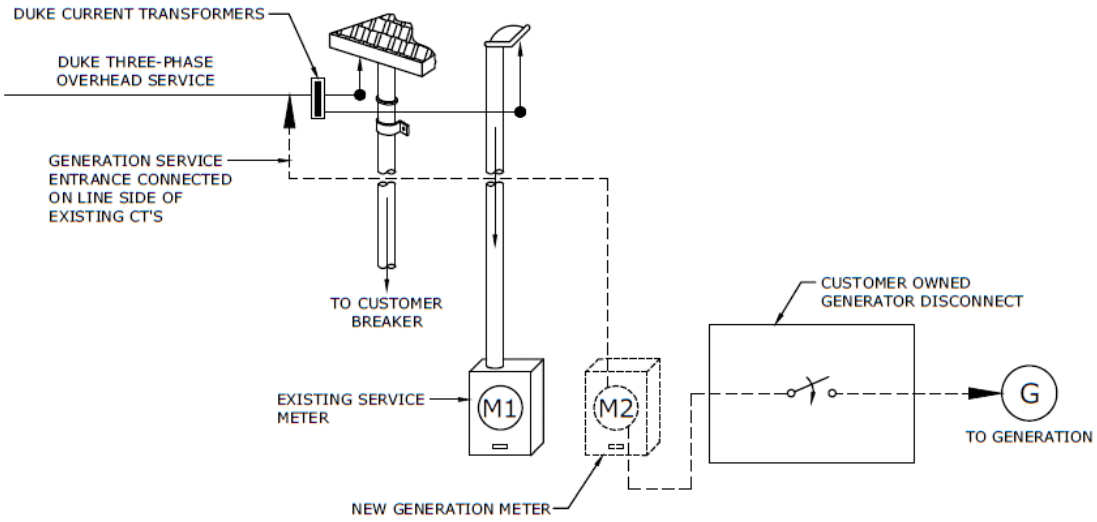
DEC	DEI	DEP	DEF
	X		

FIG 68A

OH SERVICE - GENERATOR SEPARATE SERVICE POINT



OH SERVICE - GENERATOR RISER AT EXISTING RISER



NOTES:

1. GENERATOR KVA CAPACITY CANNOT EXCEED KVA RATING OF OH BANK OR PLATFORM.
2. WARNING LABELS TO BE PLACED AT METER, CUSTOMER DISCONNECT AND TRANSFORMER POLE.
3. SINGLE LINE CONDUCTOR SHOWN FOR CLARITY.
4. CUSTOMER-OWNED DISCONNECT MUST BE ADJACENT TO METER, **READILY ACCESSIBLE TO COMPANY OPERATING PERSONNEL**, LOAD-BREAK RATED, LOCKABLE IN THE OPEN POSITION AND PROVIDE A "VISIBLE OPENING". **FOR DEP**, GENERATOR DISCONNECT FOR LOADS LESS THAN OR EQUAL TO 10KW CAN BE LOCATED OTHER THAN ADJACENT TO THE GENERATION METER AS LONG AS NEC IS MET. **FOR DEC & DEI**, GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
5. IF GENERATOR IS BEING ADDED WITHIN A SERVICE THAT UTILIZES SUBSTATION-STYLE TRANSFORMERS, CONTACT DISTRIBUTION STANDARDS FOR GUIDANCE ON CONNECTION.
6. SERVICE LATERAL CLEARANCE MUST MEET FIG. 11 REQUIREMENTS.

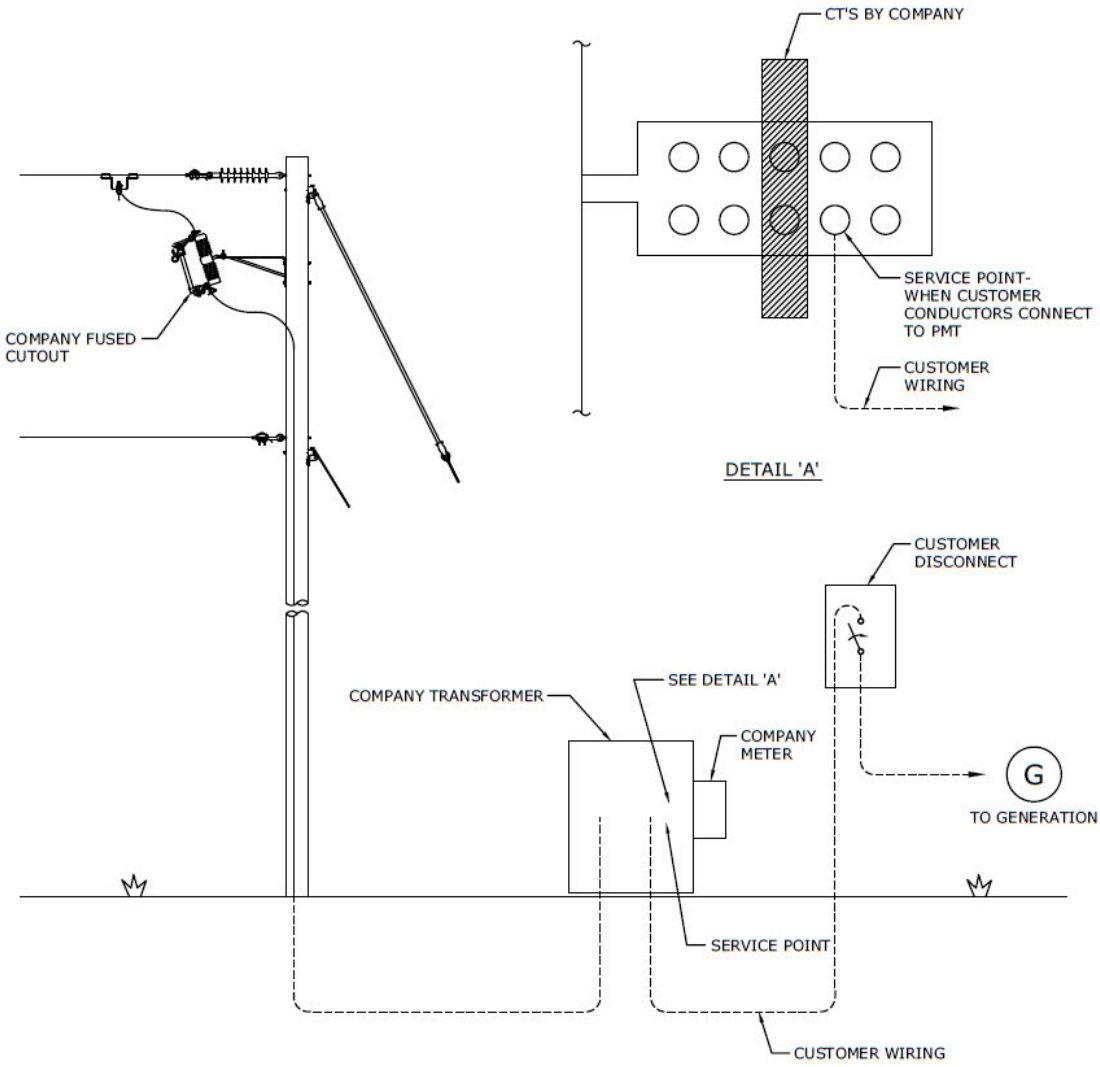
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ARCHER
0	11/20/15	SIMPSON	MEDLIN	CHANDLER

SELL ALL GENERATION
THREE-PHASE LARGE T-RATED EXISTING OH SERVICE
ADDING GENERATION METER, T-RATED OR
SELF-CONTAINED NC, SC, & INDIANA

DEC	DEI	DEP	DEF
X	X	X	

FIG 68B



NOTES:

1. THIS SERVICE ARRANGEMENT IS USED TO CONNECT TO A LARGE STANDALONE POWER PRODUCING SYSTEM WHERE COMPANY PROVIDES TRANSFORMATION.
2. WARNING LABEL TO BE PLACED AT METER AND CUSTOMER DISCONNECT.
3. CUSTOMER OWNED DISCONNECT MUST BE ADJACENT TO METER, LOAD-BREAK RATED, LOCKABLE IN **OPEN** POSITION AND PROVIDE A "VISIBLE OPENING". **EXCEPTION:** FOR FEEDER DISCONNECTS RATED ≥1000 AMPS AT 480Y/277 VOLTS, NO VISIBLE OPEN IS REQUIRED, BUT ALL OTHER PROVISIONS MUST BE MET.
4. GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
5. TOTAL CUSTOMER CONDUCTORS CANNOT EXCEED 8 CONDUCTORS (12 SETS WHEN USING PIT PAD).
6. MAXIMUM CUSTOMER CONDUCTOR SIZE IS 750 KCMIL AL/CU.
7. SINGLE LINE DIAGRAM SHOWN FOR CLARITY.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

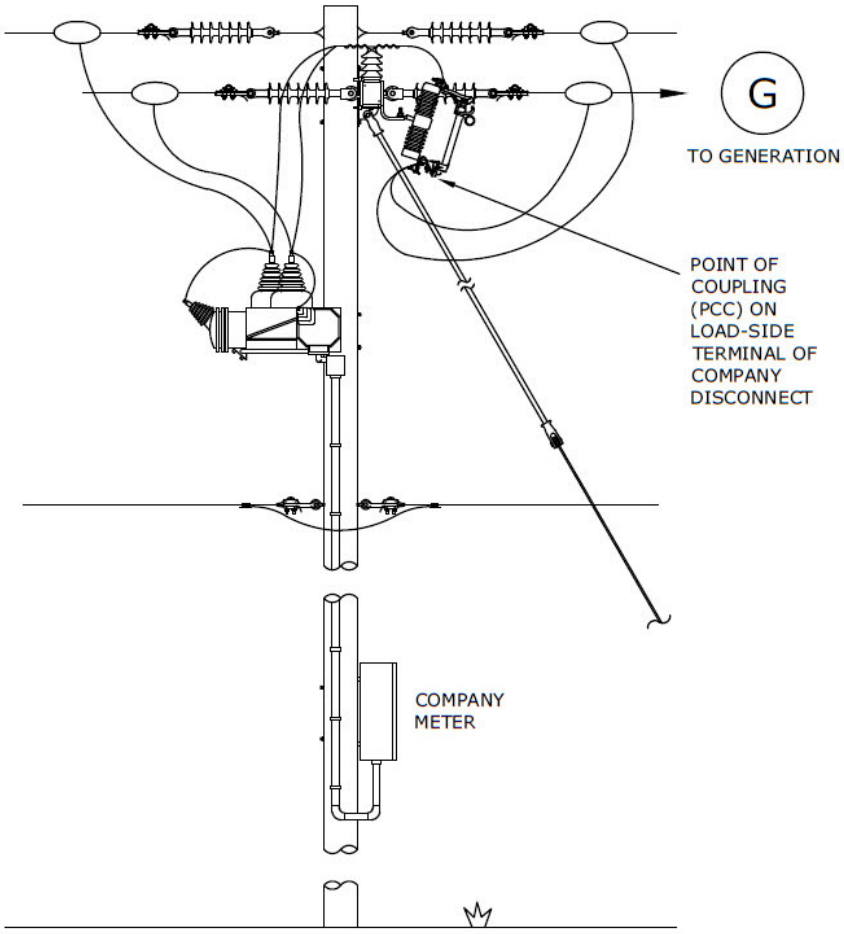
SELL ALL GENERATION
STANDALONE SYSTEM
THREE-PHASE SECONDARY METERING

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 69

DUKE ENERGY



DUKE ENERGY PRIMARY METER POLE

NOTES:

1. THIS SERVICE ARRANGEMENT IS USED TO CONNECT TO LARGE STANDALONE GENERATION (DER) SYSTEMS WHERE COMPANY PROVIDES FUSING FOR PROTECTION. DER SYSTEM PROVIDER CONNECTS TO PRIMARY VOLTAGE AND PROVIDES THEIR OWN TRANSFORMATION AND OVERHEAD FACILITIES. THE RECLOSER SHALL BE LOCATED ON THE PROPERTY OF THE DER SYSTEM OR AT A PRE-APPROVED LOCATION THAT MINIMIZES POTENTIAL IMPACTS TO OTHER CUSTOMERS.

2. DER OWNER PROVIDES AND INSTALLS ALL MATERIAL AND EQUIPMENT BEYOND THE POINT OF COMMON COUPLING.

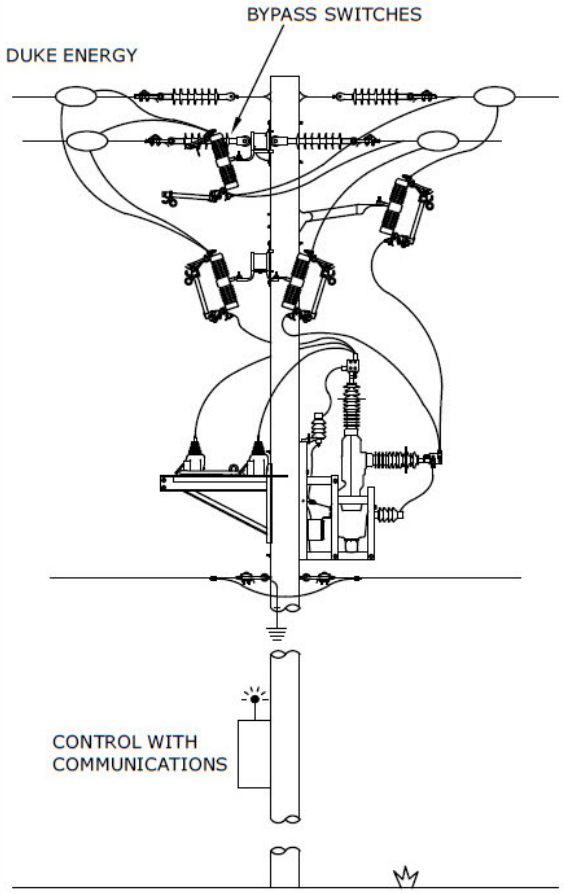
3. COMPANY PROVIDES ALL FACILITIES TO THE POINT OF COMMON COUPLING. DER SYSTEM PROVIDER MUST PROVIDE A LOCATION FOR COMPANY FACILITIES THAT MUST:
   - BE LOCATED OUT OF WETLANDS AND OTHER AREAS SUBJECT TO FLOODING.
   - HAVE MAINTAINED ACCESS ROADS, PREFERABLY WITH GRAVEL BED AND ADEQUATE DRAINAGE FOR ACCESS BY STANDARD COMPANY EQUIPMENT DURING ALL ADVERSE WEATHER CONDITIONS.
   - BE FREE OF VEGETATION FOR BUCKET TRUCK ACCESS.
   - BE LOCATED OUTSIDE A LOCKED GATE OR FACILITY FENCE. IF THIS CAN NOT BE ACCOMPLISHED, ANY GATES OR ACCESS POINTS MUST ACCOMMODATE A COMPANY LOCK AND BE ACCESSIBLE AT ANY AND ALL TIMES.

3				
2				
1				
0	1/11/19	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

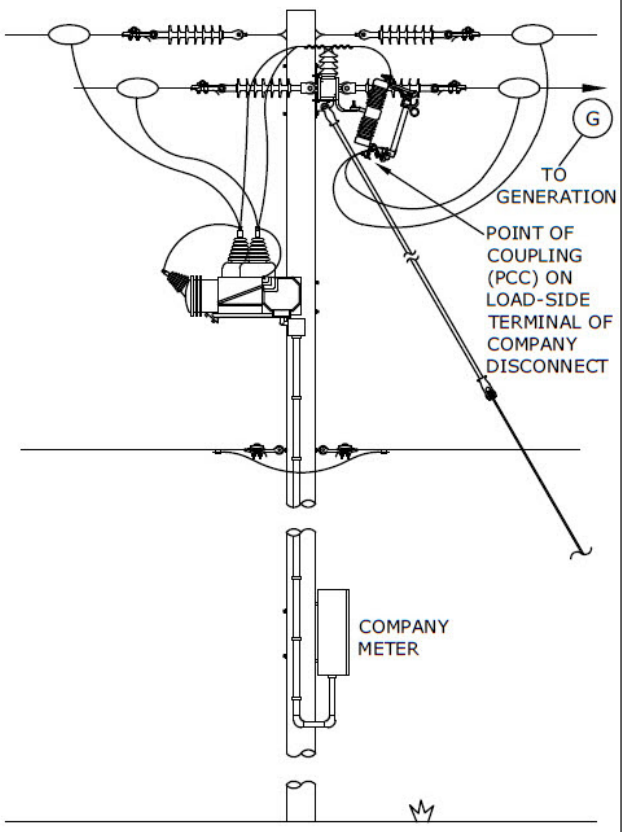
SELL-ALL GENERATION
THREE-PHASE PRIMARY METERING WITH
FUSED PROTECTION - OVERHEAD SERVICE

DEC	DEM	DEP	DEF
	X		

FIG 71A



DUKE ENERGY RECLOSER POLE



DUKE ENERGY PRIMARY METER POLE

NOTES:

1. THIS DRAWING IS A REPRESENTATION OF THE DUKE ENERGY PROTECTIVE AND METERING PACKAGE FOR GENERATION SITES (DER SYSTEMS).

2. THIS SERVICE ARRANGEMENT IS USED TO CONNECT TO LARGE (> 1 MW) STANDALONE DER SYSTEMS WHERE COMPANY PROVIDES A RECLOSER FOR PROTECTION. DER SYSTEM PROVIDER CONNECTS TO PRIMARY VOLTAGE AND PROVIDES THEIR OWN TRANSFORMATION AND OVERHEAD FACILITIES. THE RECLOSER SHALL BE LOCATED ON THE PROPERTY OF THE DER SYSTEM OR AT A PRE-APPROVED LOCATION THAT MINIMIZES POTENTIAL IMPACTS TO OTHER CUSTOMERS.

3. DER OWNER PROVIDES AND INSTALLS ALL MATERIAL AND EQUIPMENT BEYOND THE POINT OF COMMON COUPLING.

4. COMPANY PROVIDES ALL FACILITIES TO THE POINT OF COMMON COUPLING. DER SYSTEM PROVIDER MUST PROVIDE A LOCATION FOR COMPANY FACILITIES THAT MUST:
   - BE LOCATED OUT OF WETLANDS AND OTHER AREAS SUBJECT TO FLOODING.
   - HAVE MAINTAINED ACCESS ROADS, PREFERABLY WITH GRAVEL BED AND ADEQUATE DRAINAGE FOR ACCESS BY STANDARD COMPANY EQUIPMENT DURING ALL ADVERSE WEATHER CONDITIONS.
   - BE FREE OF VEGETATION FOR BUCKET TRUCK ACCESS.
   - BE LOCATED OUTSIDE A LOCKED GATE OR FACILITY FENCE. IF THIS CANNOT BE ACCOMPLISHED, ANY GATES OR ACCESS POINTS MUST ACCOMMODATE A COMPANY LOCK AND BE ACCESSIBLE AT ANY AND ALL TIMES.

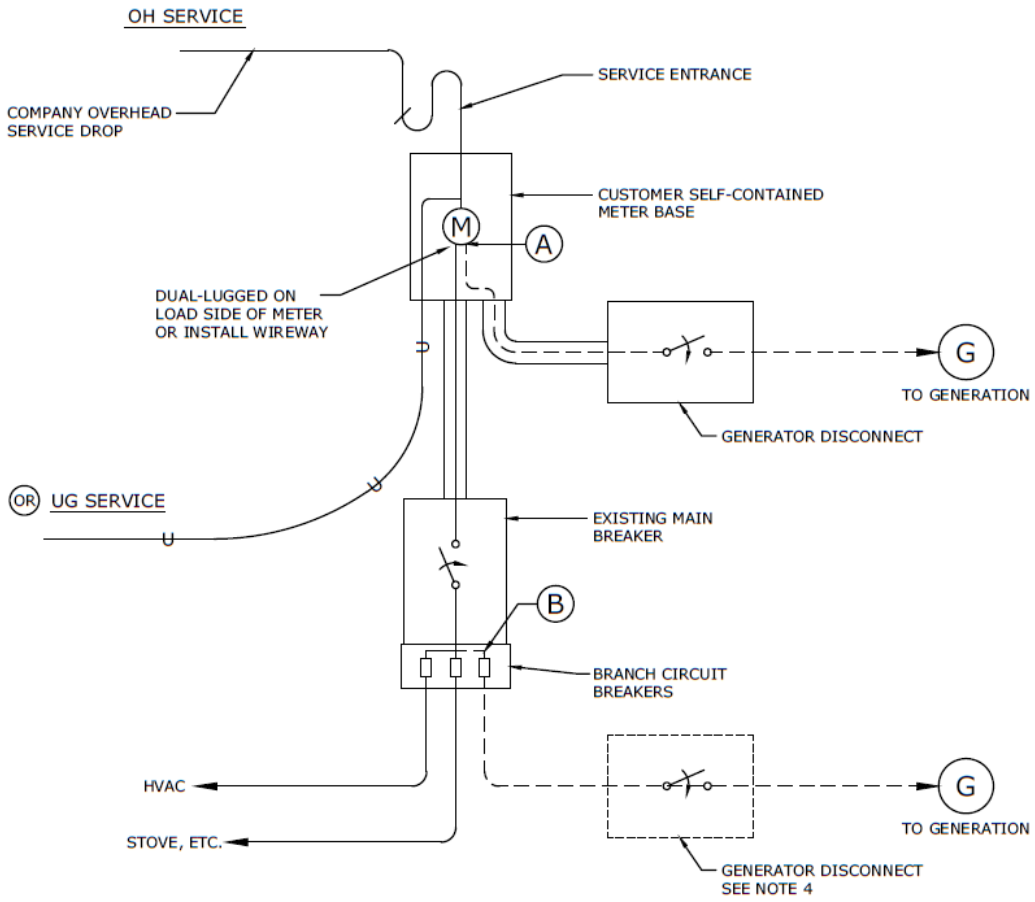
5. BYPASS SWITCHES WILL BE REMOVED FOLLOWING THE COMMISSIONING OF THE RECLOSER.

REVISED		BY	CK'D	APPR.
3				
2				
1				
0	1/11/19	DIETERLE	BRUINS	ADCOCK

SELL-ALL GENERATION
THREE-PHASE PRIMARY METERING WITH
DER RECLOSER - OVERHEAD SERVICE

DEC	DEM	DEP	DEF
	X		

FIG 71B



NOTES:

1. GENERATION DISCONNECT CAN BE CONNECTED AT EITHER (A) OR (B).
2. GENERATOR DISCONNECT POSITION (A) REQUIREMENTS: MUST BE LOAD-BREAK RATED, LOCKABLE OPEN POSITION, PROVIDE VISIBLE OPEN AND LOCATED ADJACENT TO METER.
3. **FOR DEP**, GENERATOR DISCONNECT FOR LOADS LESS THAN OR EQUAL TO 10KW CAN BE LOCATED OTHER THAN ADJACENT TO THE METER AS LONG AS NEC IS MET.
4. **FOR DEC & DEI**, GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
5. GENERATOR DISCONNECT POSITION (B) REQUIREMENTS: MUST BE LOAD-BREAK RATED AND LOCKABLE OPEN PROVISION.
6. EXISTING METER MUST BE REPLACED WITH BI-DIRECTIONAL METER.
7. WARNING LABEL MUST BE PLACED AT METER AND GENERATOR DISCONNECT.
8. CUSTOMER ELECTRICIAN TO REPLACE EXISTING LOAD SIDE METER LUGS WITH A DUAL-LUGGED CONNECTOR TO ACCEPT WIRING. IF CORRECT CONNECTORS ARE NOT AVAILABLE, REPLACE METER SOCKET OR A WIREWAY MUST BE INSTALLED BELOW METER BASE.

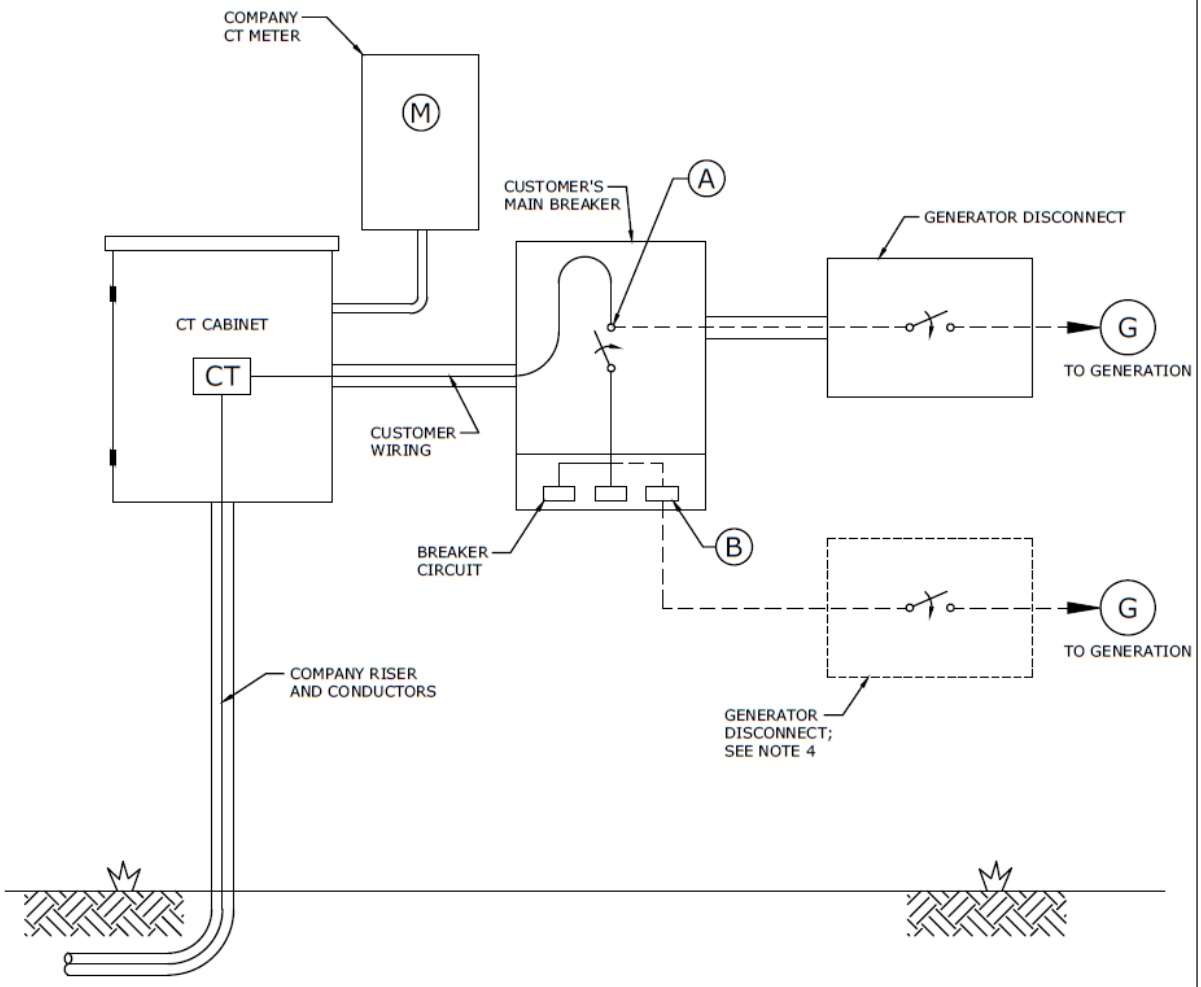
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

"NET" GENERATION METERING SINGLE OR THREE-PHASE SELF-CONTAINED METERED SERVICE RESIDENTIAL/ SMALL COMMERCIAL OH OR UG SERVICE - NC & INDIANA ONLY

DEC	DEI	DEP	DEF
X	X	X	

FIG 72A



NOTES:

1. GENERATION DISCONNECT CAN BE CONNECTED AT EITHER (A) OR (B).
2. GENERATOR DISCONNECT POSITION (A) REQUIREMENTS: MUST BE LOAD-BREAK RATED, LOCKABLE OPEN POSITION, PROVIDE VISIBLE OPEN AND LOCATED ADJACENT TO METER.
3. **FOR DEP**, GENERATOR DISCONNECT FOR LOADS LESS THAN OR EQUAL TO 10KW CAN BE LOCATED OTHER THAN ADJACENT TO THE METER AS LONG AS NEC IS MET.
4. **FOR DEC & DEI**, GENERATOR DISCONNECT REQUIRED FOR ALL LOADS AND MUST BE ADJACENT TO METER.
5. GENERATOR DISCONNECT POSITION (B) REQUIREMENTS: MUST BE LOAD-BREAK RATED AND LOCKABLE OPEN PROVISION.
6. EXISTING METER MUST BE REPLACED WITH BI-DIRECTIONAL METER.
7. WARNING LABEL MUST BE PLACED AT METER AND GENERATOR DISCONNECT.
8. FOR CONNECTION (A), CUSTOMER ELECTRICIAN TO REPLACE EXISTING SOURCE SIDE CONNECTORS ON CUSTOMER MAIN BREAKER WITH A DUAL-LUGGED CONNECTOR TO ACCEPT WIRING. IF CORRECT CONNECTORS ARE NOT AVAILABLE, A WIREWAY MUST BE INSTALLED ON SOURCE SIDE OF CUSTOMER MAIN BREAKER AND GENERATOR DISCONNECT.

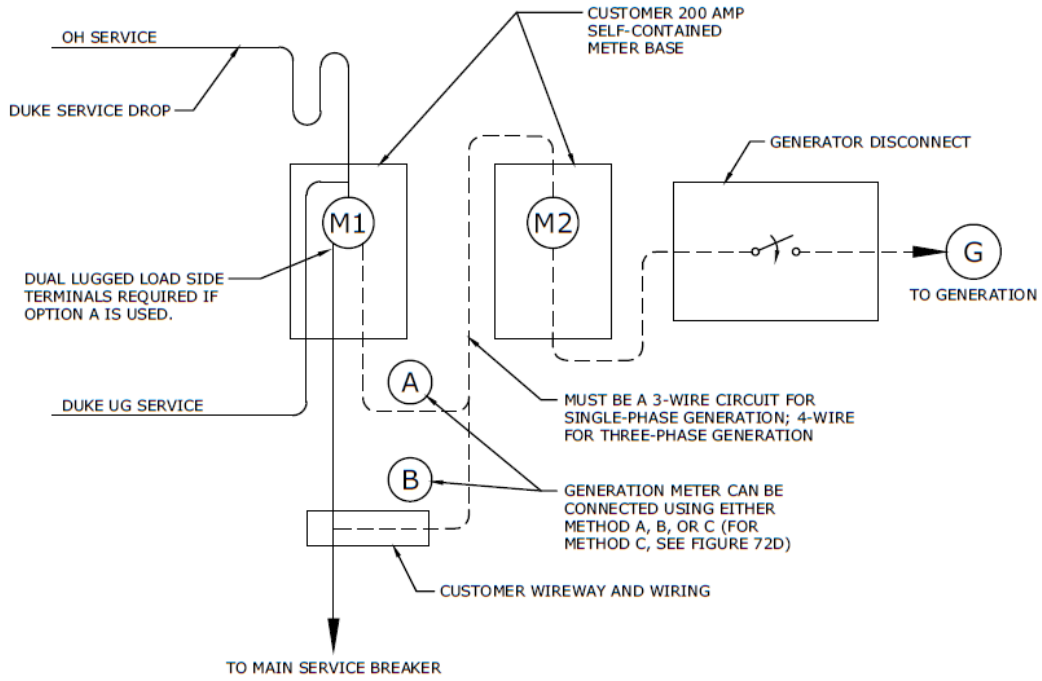
REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

"NET" GENERATION METERING
SINGLE OR THREE-PHASE C.T. METERED SERVICE
RESIDENTIAL/SMALL COMMERCIAL
UG SERVICE - NC & INDIANA ONLY

DUKE ENERGY.

DEC	DEI	DEP	DEF
X	X	X	

FIG 72B



(M1) SERVICE METER - EXISTING METER MUST BE REPLACED WITH A BI-DIRECTIONAL METER.

(M2) GENERATION METER - MUST BE INSTALLED ADJACENT TO SERVICE METER AND MUST BE BI-DIRECTIONAL.

NOTES:

1. GENERATION CAN BE CONNECTED USING METHOD A OR B SHOWN OR METHOD C SHOWN ON FIGURE 72D. FOR METHOD A, CUSTOMER ELECTRICIAN MUST REPLACE EXISTING LOAD SIDE METER BASE LUGS WITH DUAL LUG CONNECTOR. IF METHOD B IS USED, THE WIREWAY MUST BE INSTALLED BELOW THE EXISTING METER BASE.
2. **FOR DEC & DEI**, GENERATOR DISCONNECT MUST BE ACCESSIBLE TO COMPANY PERSONNEL, LOAD-BREAK RATED, LOCKABLE IN THE OPEN POSITION, PROVIDE A VISIBLE OPEN, AND LOCATED ADJACENT TO SERVICE METER.
3. **FOR DEP**, GENERATOR DISCONNECT MUST BE ACCESSIBLE TO COMPANY PERSONNEL, LOAD-BREAK RATED, LOCKABLE IN THE OPEN POSITION, PROVIDE A VISIBLE OPEN, AND LOCATED ADJACENT TO SERVICE METER. FOR GENERATOR LOADS ≤10KW, THE GENERATOR DISCONNECT CAN BE LOCATED OTHER THAN ADJACENT TO THE SERVICE METER AS LONG AS NEC IS MET.
4. REQUIRED WARNING LABELS MUST BE PLACED AT SERVICE METER AND DISCONNECT.
5. THE CUSTOMER'S WIRING AND ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE ADOPTED EDITION OF THE NEC AND LOCAL ORDINANCES.

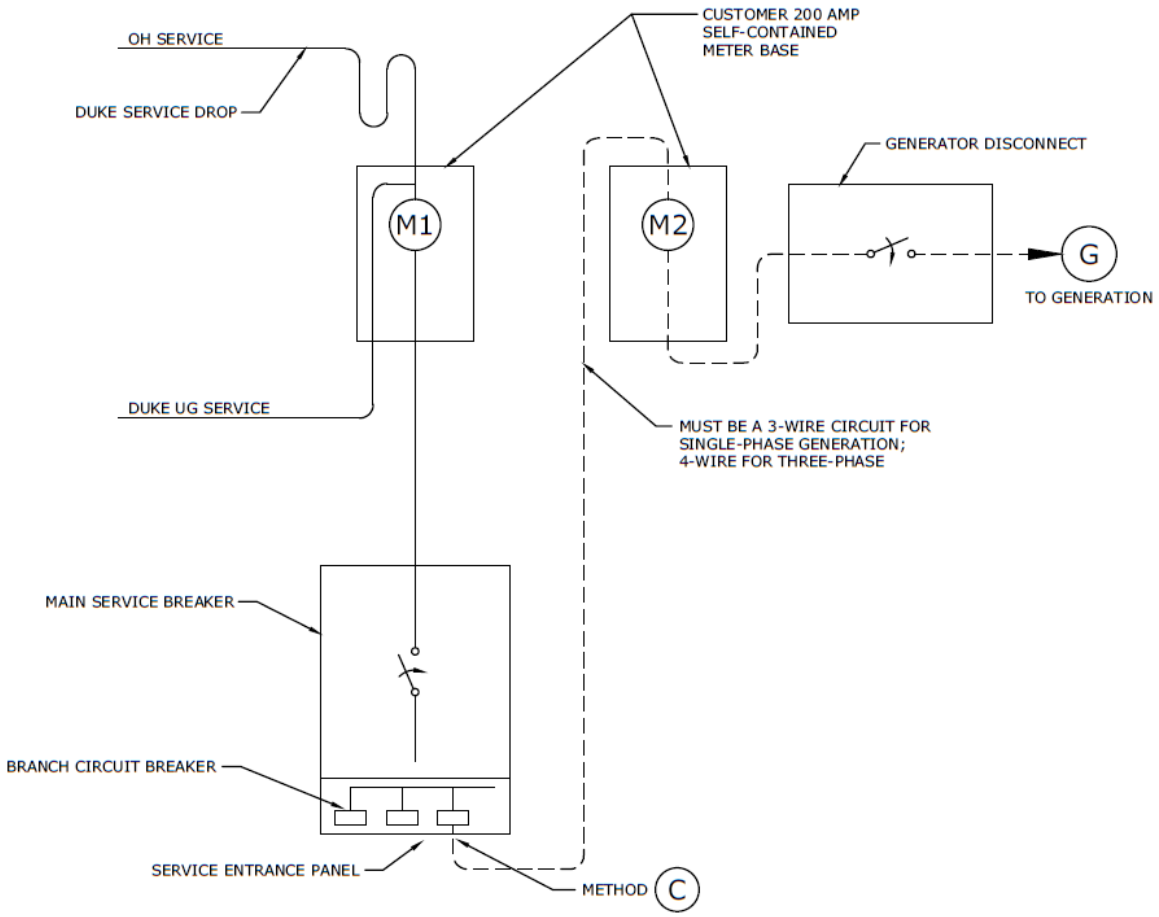
DUKE ENERGY.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	1/13/16	SIMPSON	MEDLIN	CHANDLER

"NET" GENERATION METERING SINGLE OR THREE-PHASE SELF-CONTAINED METERED SERVICE RESIDENTIAL/ SMALL COMMERCIAL OH OR UG SERVICE SC AND INDIANA ONLY - METHODS A AND B

DEC	DEI	DEP	DEF
X	X	X	

FIG 72C



M1 SERVICE METER - EXISTING METER MUST BE REPLACED WITH A BI-DIRECTIONAL METER.

M2 GENERATION METER - MUST BE INSTALLED ADJACENT TO SERVICE METER AND MUST BE BI-DIRECTIONAL.

NOTES:

1. **FOR DEC & DEI**: THE GENERATOR DISCONNECT MUST BE ACCESSIBLE TO COMPANY PERSONNEL, LOAD-BREAK RATED LOCKABLE IN THE OPEN POSITION PROVIDING A VISIBLE OPEN, AND LOCATED ADJACENT TO THE SERVICE METER.

   FOR DEP: THE BRANCH CIRCUIT BREAKER MUST BE LOAD-BREAK RATED AND LOCKABLE OPEN. GENERATOR DISCONNECT FOR LOAD ≤10 KW CAN BE LOCATED OTHER THAN ADJACENT TO THE METER AS LONG AS NEC IS MET.

2. REQUIRED WARNING LABELS MUST BE PLACED AT SERVICE METER AND DISCONNECT.

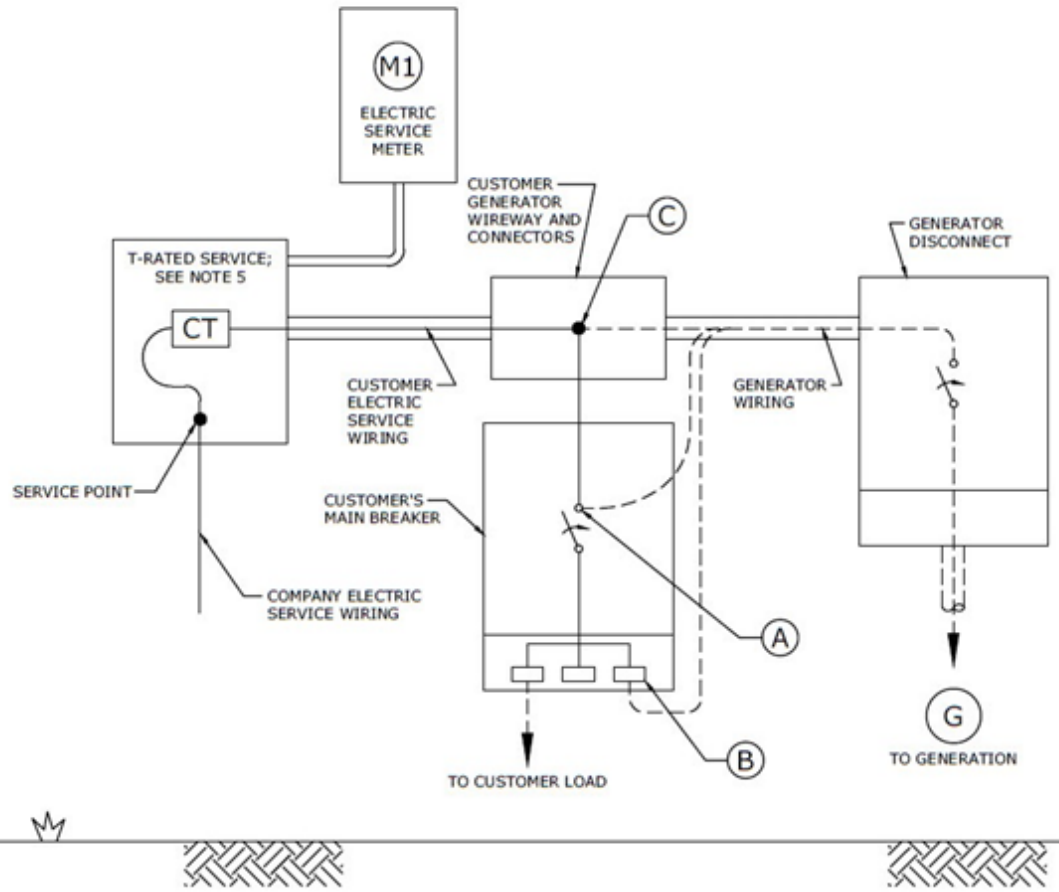
3. THE CUSTOMER'S WIRING AND ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE ADOPTED EDITION OF THE NEC AND LOCAL ORDINANCES.

REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUINS	ADCOCK
1	2/21/17	ARCHER	EANES	ADCOCK
0	10/28/15	SIMPSON	MEDLIN	CHANDLER

"NET" GENERATION METERING SINGLE OR THREE-PHASE
SELF-CONTAINED METERED SERVICE
RESIDENTIAL/ SMALL COMMERCIAL OH OR UG SERVICE
SC AND INDIANA ONLY - METHOD C

DEC	DEI	DEP	DEF
X	X	X	

FIG 72D



NOTES:

1. GENERATOR DISCONNECT CAN BE CONNECTED AT EITHER (A), (B), OR (C).
2. GENERATOR DISCONNECT, LOAD-BREAK RATED, LOCKABLE OPEN. PROVIDE VISIBLE OPEN.
3. COMPANY METER MUST BE BI-DIRECTIONAL.
4. DUKE WILL PLACE GENERATION WARNING LABELS AT METER AND GENERATOR DISCONNECT.
5. COMPANY ELECTRIC SERVICE CT'S MAY BE IN A PADMOUNT TRANSFORMER, CT CABINET MOUNTED ON THE BUILDING, A MAST, OR UTILITY POLE. (NOTE: DEP: PROVIDES CT CABINET. DEC & DEI: CUSTOMER PROVIDES CABINET) FOR INSTANCES WHERE SERVICE IS PROVIDED BY A PADMOUNT TRANSFORMER, THE GENERATOR WIRING MAY BE CONNECTED WITHIN THE SECONDARY COMPARTMENT OF THE TRANSFORMER ONLY IF THERE IS ADEQUATE SPACE AVAILABLE ON THE TRANSFORMER SPADES. THIS EXCEPTION MUST BE VERIFIED IN THE FIELD PRIOR TO ANY FINAL DESIGN APPROVAL.

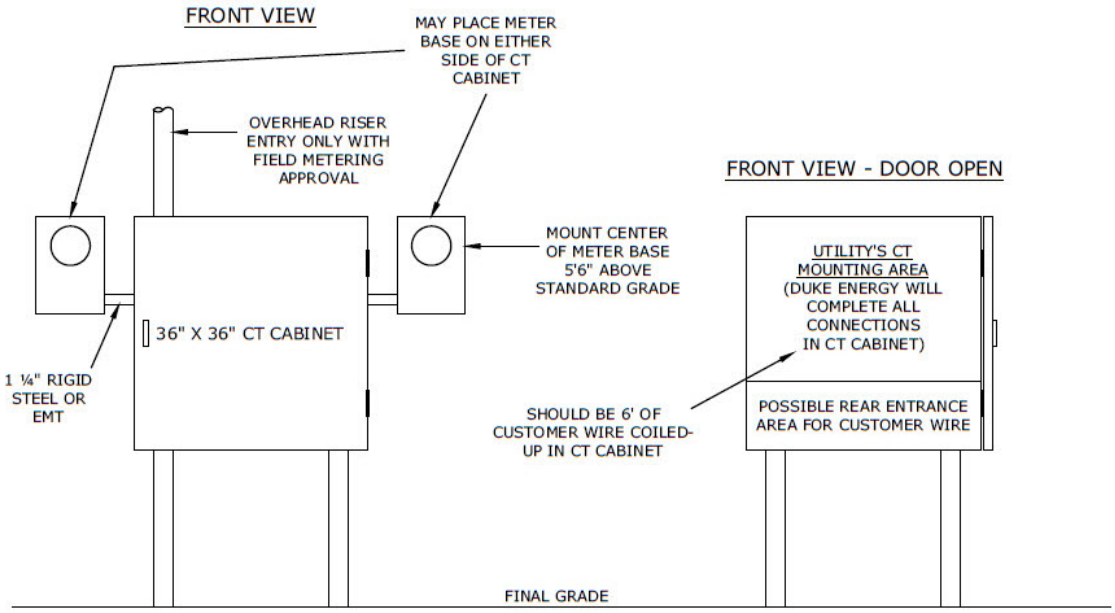
REVISED		BY	CK'D	APPR.
3				
2	12/13/17	DIETERLE	BRUENS	ADCOCK
1	2/21/17	ARCHER	BANES	ADCOCK
0	8/3/16	ARCHER	MEDLIN	CHANDLER

"NET" GENERATION METERING
THREE-PHASE (T-RATED SERVICES)
LARGE COMMERCIAL/ INDUSTRIAL
NORTH CAROLINA & INDIANA ONLY

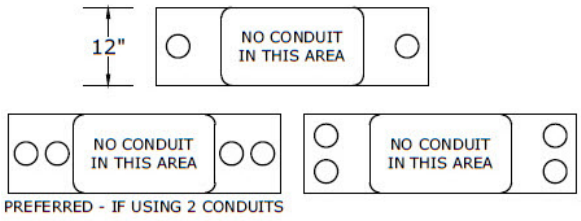
DUKE ENERGY.

DEC	DEI	DEP	DEF
X	X	X	

FIG 72G



BOTTOM VIEW POSSIBLE CONDUIT CONFIGURATIONS



PREFERRED - IF USING 2 CONDUITS

NOTES:

1. NO CUSTOMER GROUND ALLOWED IN CT CABINET OR METER BASE.
2. 5 TOTAL RUNS OF WIRE ALLOWED IN CT CABINET (2 UTILITY SERVICE RUNS & 3 CUSTOMER RUNS).
3. CONSULT DISTRIBUTION ENGINEERING TO ESTABLISH CUSTOMER CT CABINET LOCATION ON BUILDING AND CONDUIT CONFIGURATION.
4. FOR UNDERGROUND SERVICE SEE FIGURE 21.
5. FOR OVERHEAD SERVICE SEE FIGURE 44.

3				
2				
1				
0	12/13/17	DIETERLE	BRUNS	ADCOCK
REVISED		BY	CK'D	APPR.

CT CABINET INSTALLATION

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

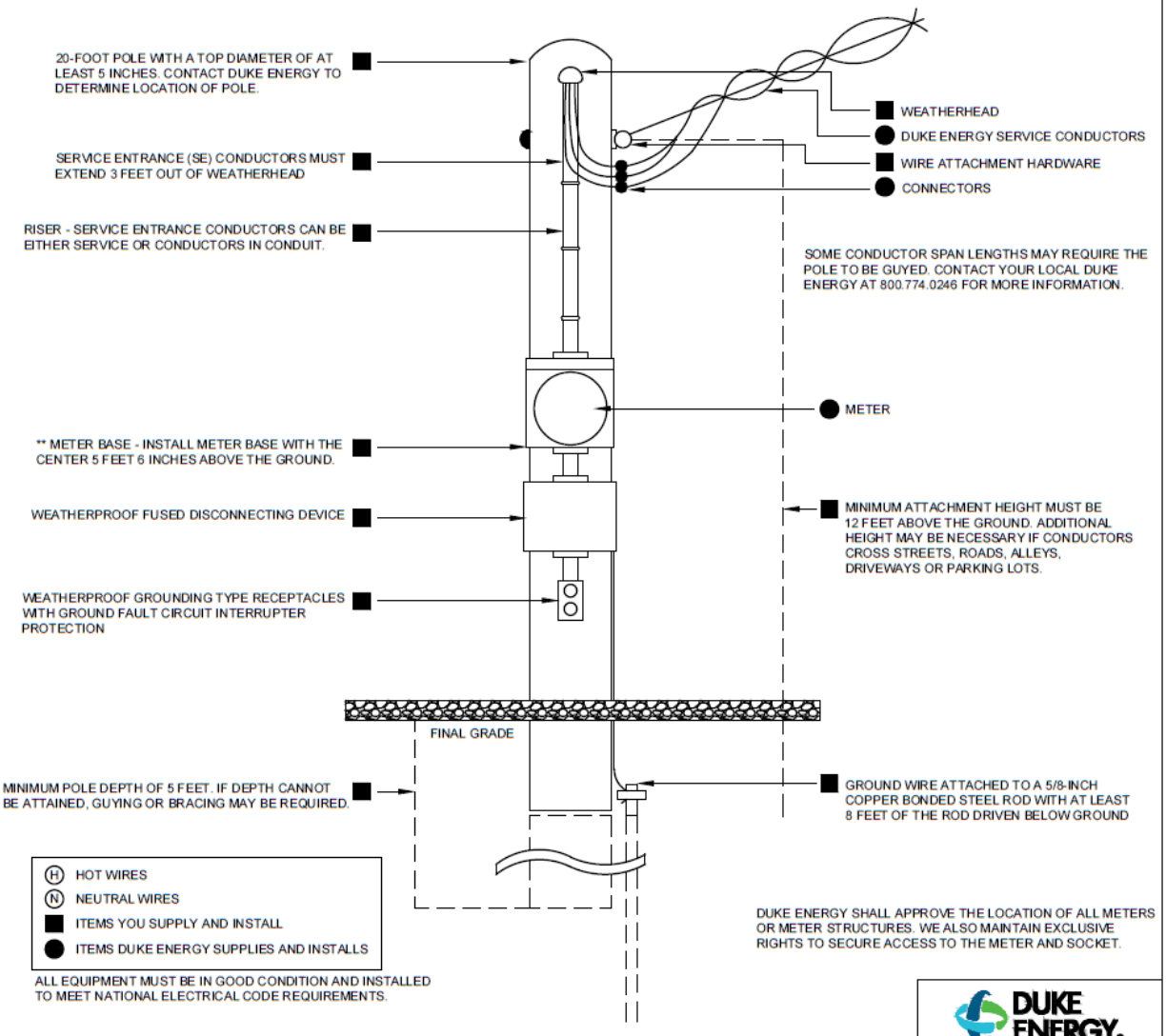
FIG 101

A NONREFUNDABLE CHARGE FOR TEMPORARY SERVICE WILL BE REQUIRED.
THE COST OF A STANDARD OVERHEAD TEMPORARY SERVICE IS $200 IF THE SERVICE IS 100 FEET FOR LESS.

TEMPORARY OVERHEAD SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD 100 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.



ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

** FOR A SPECIFIC LIST OF APPROVED METER BASES, VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.

REVISED	BY	CK'D	APPR.
3			
2			
1			
0 12/13/17	DIETERLE	BRUINS	ADCOCK

TEMPORARY OVERHEAD SERVICE

DUKE ENERGY.

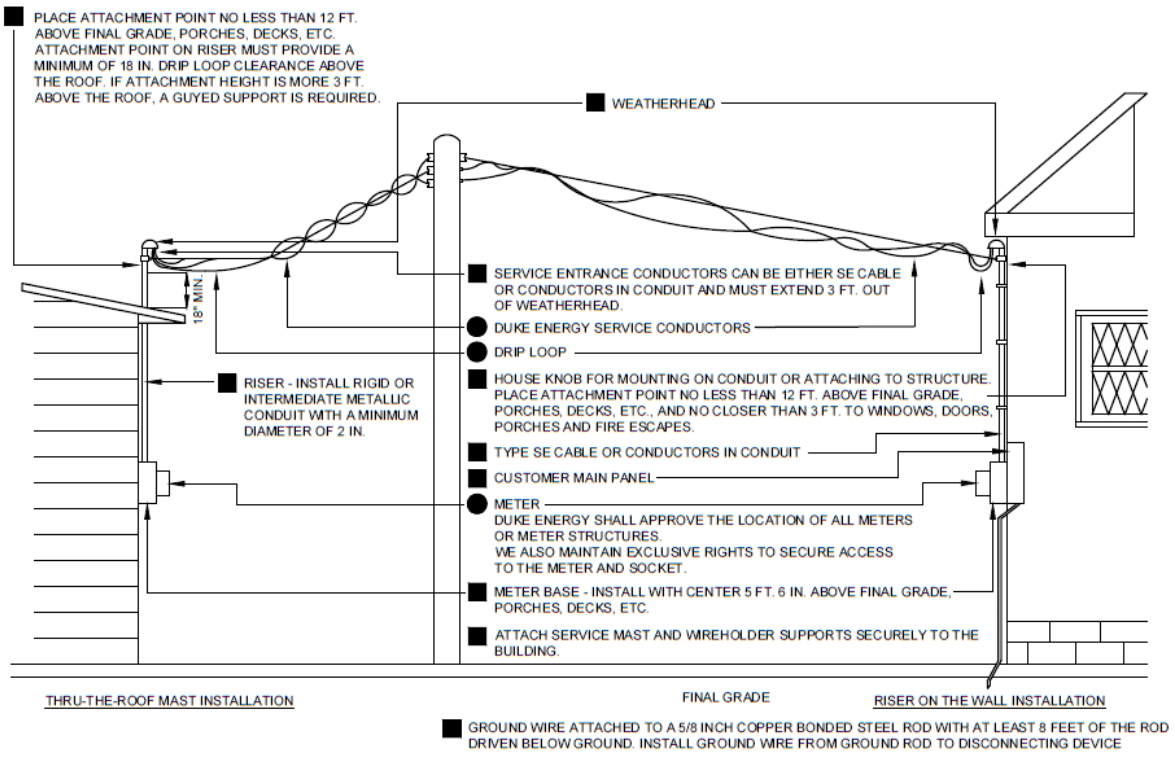
DEC	DEI	DEP	DEF
	X		

FIG 102

PERMANENT OVERHEAD SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD 100 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL OVERHEAD/UNDERGROUND 400 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4
400 AMP	600 KCMIL	500 KCMIL	400 KCMIL	350 KCMIL	3/0	1/0

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.



GROUND WIRE ATTACHED TO A 5/8 INCH COPPER BONDED STEEL ROD WITH AT LEAST 8 FEET OF THE ROD DRIVEN BELOW GROUND. INSTALL GROUND WIRE FROM GROUND ROD TO DISCONNECTING DEVICE

(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

3					
2					
1					
0	12/13/17	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

PERMANENT OVERHEAD SERVICE

DEC	DEI	DEP	DEF
	X		

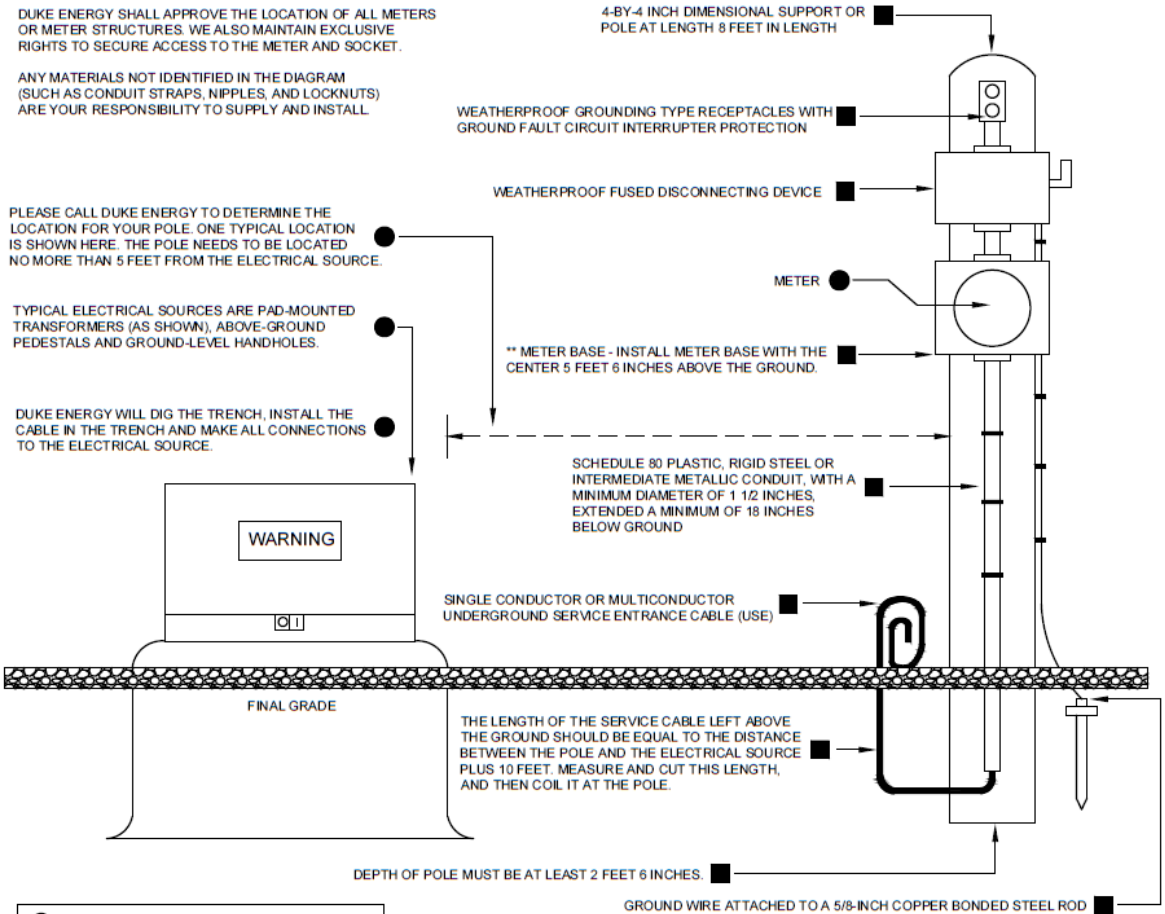
FIG 103

A NONREFUNDABLE CHARGE FOR TEMPORARY SERVICE WILL BE REQUIRED.
THE COST OF A STANDARD UNDERGROUND TEMPORARY SERVICE IS $120.

TEMPORARY UNDERGROUND SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD 100 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.



(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

** FOR A SPECIFIC LIST OF APPROVED METER BASES, VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.

3				
2				
1				
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

TEMPORARY UNDERGROUND SERVICE

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 104

PERMANENT UNDERGROUND SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL UNDERGROUND 400 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
200 AMP	4/0	2/0	2/0	1/0	#2	#4
400 AMP**	600 KCMIL	500 KCMIL	400 KCMIL	350 KCMIL	3/0	1/0

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.
**ALL 400 AMP METER BASES MUST INCLUDE LINE SIDE LUGS THAT ACCOMMODATE 500 KCMIL WIRE.

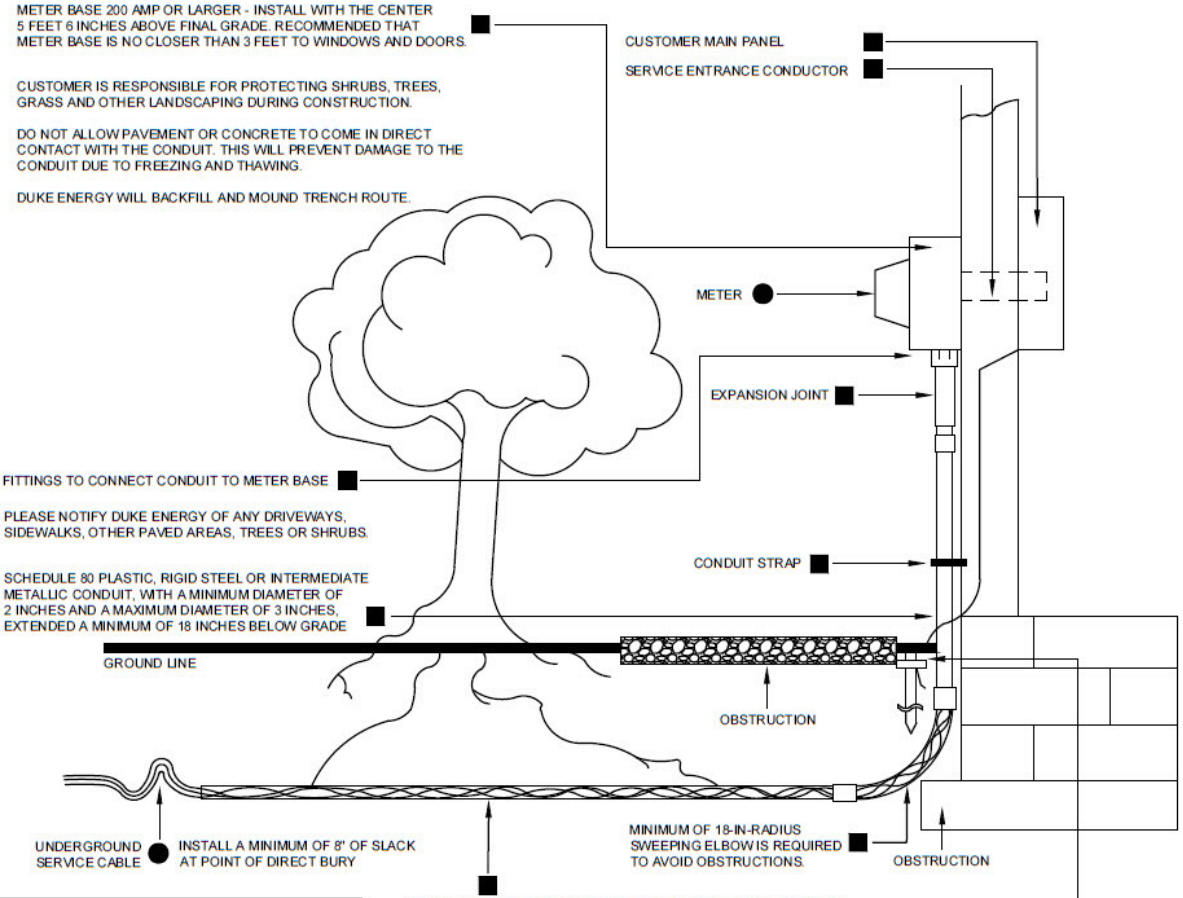
THE METER BASE SHOULD BE LOCATED ON THE STRUCTURE AT THE POINT CLOSEST TO THE SUPPLY OF POWER TO AVOID ADDITIONAL CHARGES.

METER BASE 200 AMP OR LARGER - INSTALL WITH THE CENTER 5 FEET 6 INCHES ABOVE FINAL GRADE. RECOMMENDED THAT METER BASE IS NO CLOSER THAN 3 FEET TO WINDOWS AND DOORS.

CUSTOMER IS RESPONSIBLE FOR PROTECTING SHRUBS, TREES, GRASS AND OTHER LANDSCAPING DURING CONSTRUCTION.

DO NOT ALLOW PAVEMENT OR CONCRETE TO COME IN DIRECT CONTACT WITH THE CONDUIT. THIS WILL PREVENT DAMAGE TO THE CONDUIT DUE TO FREEZING AND THAWING.

DUKE ENERGY WILL BACKFILL AND MOUND TRENCH ROUTE.



(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

INSTALL AND PROVIDE CONDUIT FOR ANY DRIVEWAYS, SIDEWALKS, OTHER PAVED AREAS, TREES OR SHRUBS. INSTALL CONDUIT MINIMUM OF 30 INCHES BELOW FINAL GRADE.

GROUND WIRE ATTACHED TO A 5/8 INCH COPPER BONDED STEEL ROD WITH AT LEAST 8 FEET OF THE ROD DRIVEN BELOW GROUND. INSTALL GROUND WIRE FROM GROUND ROD TO DISCONNECTING DEVICE.

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

DUKE ENERGY SHALL APPROVE THE LOCATION OF ALL METERS OR METER STRUCTURES. WE ALSO MAINTAIN EXCLUSIVE RIGHTS TO SECURE ACCESS TO THE METER AND SOCKET.

REVISED		BY	CK'D	APPR.
3				
2				
1	11/15/18	DIETERLE	BRUINS	ADCOCK
0	12/13/17	DIETERLE	BRUINS	ADCOCK

PERMANENT UNDERGROUND SERVICE

DEC	DEI	DEP	DEF
	X		

FIG 105

PERMANENT UNDERGROUND SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL UNDERGROUND 400 AMP SERVICE, 1 METER POSITION	

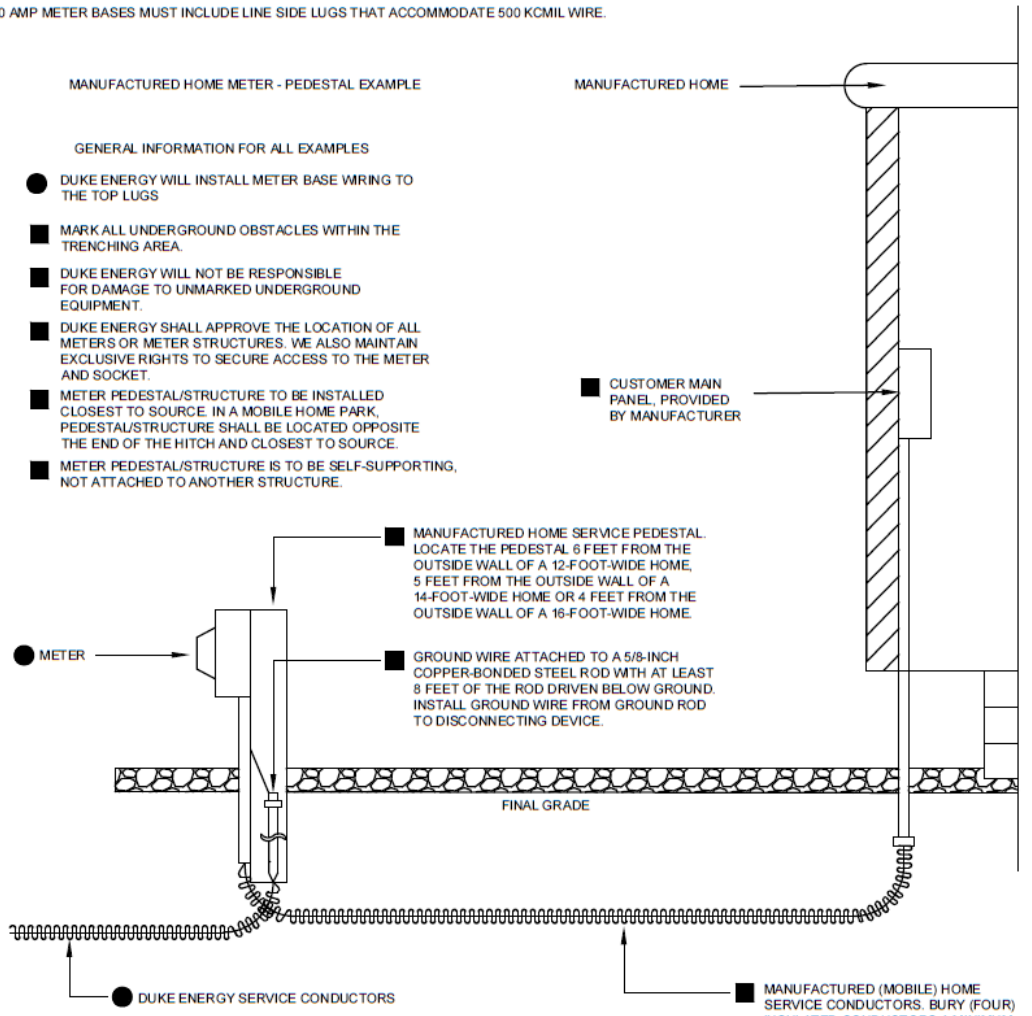
BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
200 AMP	4/0	2/0	2/0	1/0	#2	#4
400 AMP**	600 KCMIL	500 KCMIL	400 KCMIL	350 KCMIL	3/0	1/0

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.
**ALL 400 AMP METER BASES MUST INCLUDE LINE SIDE LUGS THAT ACCOMMODATE 500 KCMIL WIRE.

MANUFACTURED HOME METER - PEDESTAL EXAMPLE

GENERAL INFORMATION FOR ALL EXAMPLES

- DUKE ENERGY WILL INSTALL METER BASE WIRING TO THE TOP LUGS
- MARK ALL UNDERGROUND OBSTACLES WITHIN THE TRENCHING AREA.
- DUKE ENERGY WILL NOT BE RESPONSIBLE FOR DAMAGE TO UNMARKED UNDERGROUND EQUIPMENT.
- DUKE ENERGY SHALL APPROVE THE LOCATION OF ALL METERS OR METER STRUCTURES. WE ALSO MAINTAIN EXCLUSIVE RIGHTS TO SECURE ACCESS TO THE METER AND SOCKET.
- METER PEDESTAL/STRUCTURE TO BE INSTALLED CLOSEST TO SOURCE. IN A MOBILE HOME PARK, PEDESTAL/STRUCTURE SHALL BE LOCATED OPPOSITE THE END OF THE HITCH AND CLOSEST TO SOURCE.
- METER PEDESTAL/STRUCTURE IS TO BE SELF-SUPPORTING, NOT ATTACHED TO ANOTHER STRUCTURE.



(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

*FOR A SPECIFIC LIST OF APPROVED METERS, VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.

3				
2				
1				
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

CUSTOMER-OWNED PERMANENT UNDERGROUND METER STRUCTURES MANUFACTURED HOME METER PEDESTAL EXAMPLE

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 106A

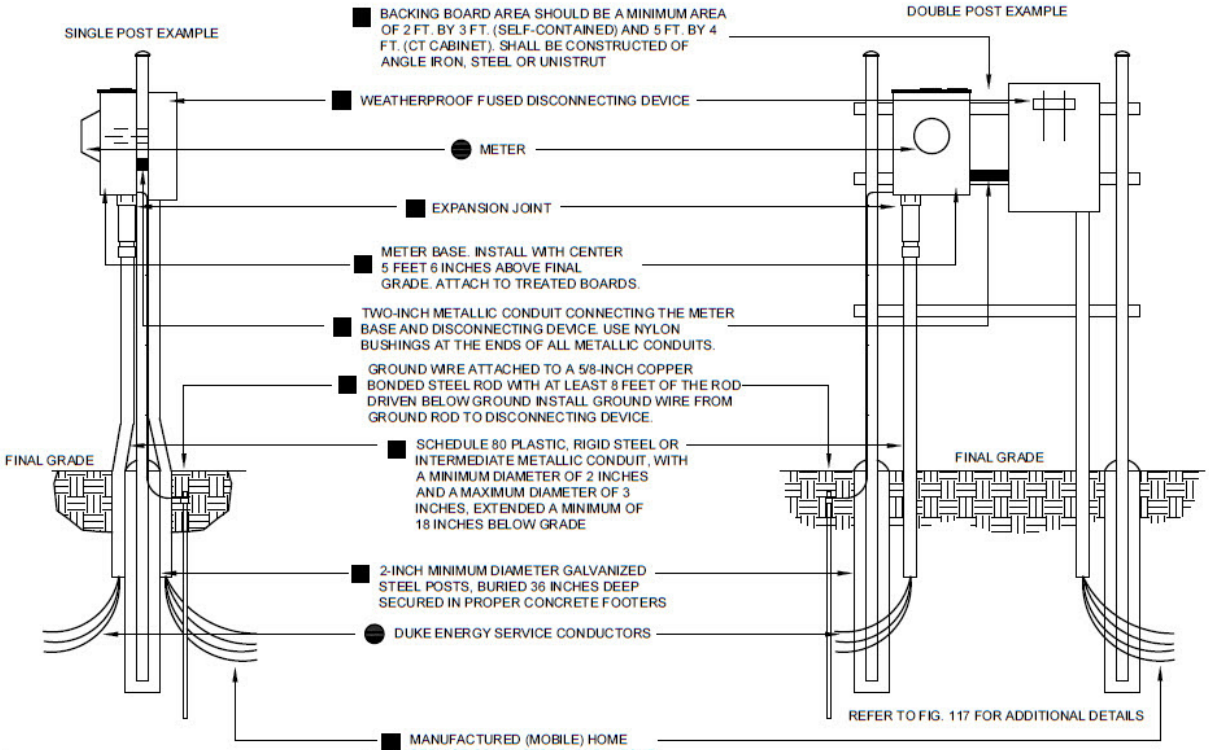
PERMANENT UNDERGROUND SERVICE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD/UNDERGROUND 200 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL UNDERGROUND 400 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
200 AMP	4/0	2/0	2/0	1/0	#2	#4
400 AMP**	600 KCMIL	500 KCMIL	400 KCMIL	350 KCMIL	3/0	1/0

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.
**ALL 400 AMP METER BASES MUST INCLUDE LINE SIDE LUGS THAT ACCOMMODATE 500 KCMIL WIRE.

GENERAL INFORMATION FOR ALL EXAMPLES

- DUKE ENERGY WILL INSTALL METER BASE WIRING TO THE TOP LUGS
- MARK ALL UNDERGROUND OBSTACLES WITHIN THE TRENCHING AREA.
- DUKE ENERGY WILL NOT BE RESPONSIBLE FOR DAMAGE TO UNMARKED UNDERGROUND EQUIPMENT.
- DUKE ENERGY SHALL APPROVE THE LOCATION OF ALL METERS OR METER STRUCTURES. WE ALSO MAINTAIN EXCLUSIVE RIGHTS TO SECURE ACCESS TO THE METER AND SOCKET.
- METER PEDESTAL/STRUCTURE TO BE INSTALLED CLOSEST TO SOURCE. IN A MOBILE HOME PARK, PEDESTAL/STRUCTURE SHALL BE LOCATED OPPOSITE THE END OF THE HITCH AND CLOSEST TO SOURCE.
- METER PEDESTAL/STRUCTURE IS TO BE SELF-SUPPORTING, NOT ATTACHED TO ANOTHER STRUCTURE.



- (H) HOT WIRES
- (N) NEUTRAL WIRES
- ITEMS YOU SUPPLY AND INSTALL
- ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

*FOR A SPECIFIC LIST OF APPROVED METERS, VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.

3				
2				
1				
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

CUSTOMER-OWNED PERMANENT UNDERGROUND METER STRUCTURES SINGLE AND DOUBLE POST EXAMPLE

DUKE ENERGY.

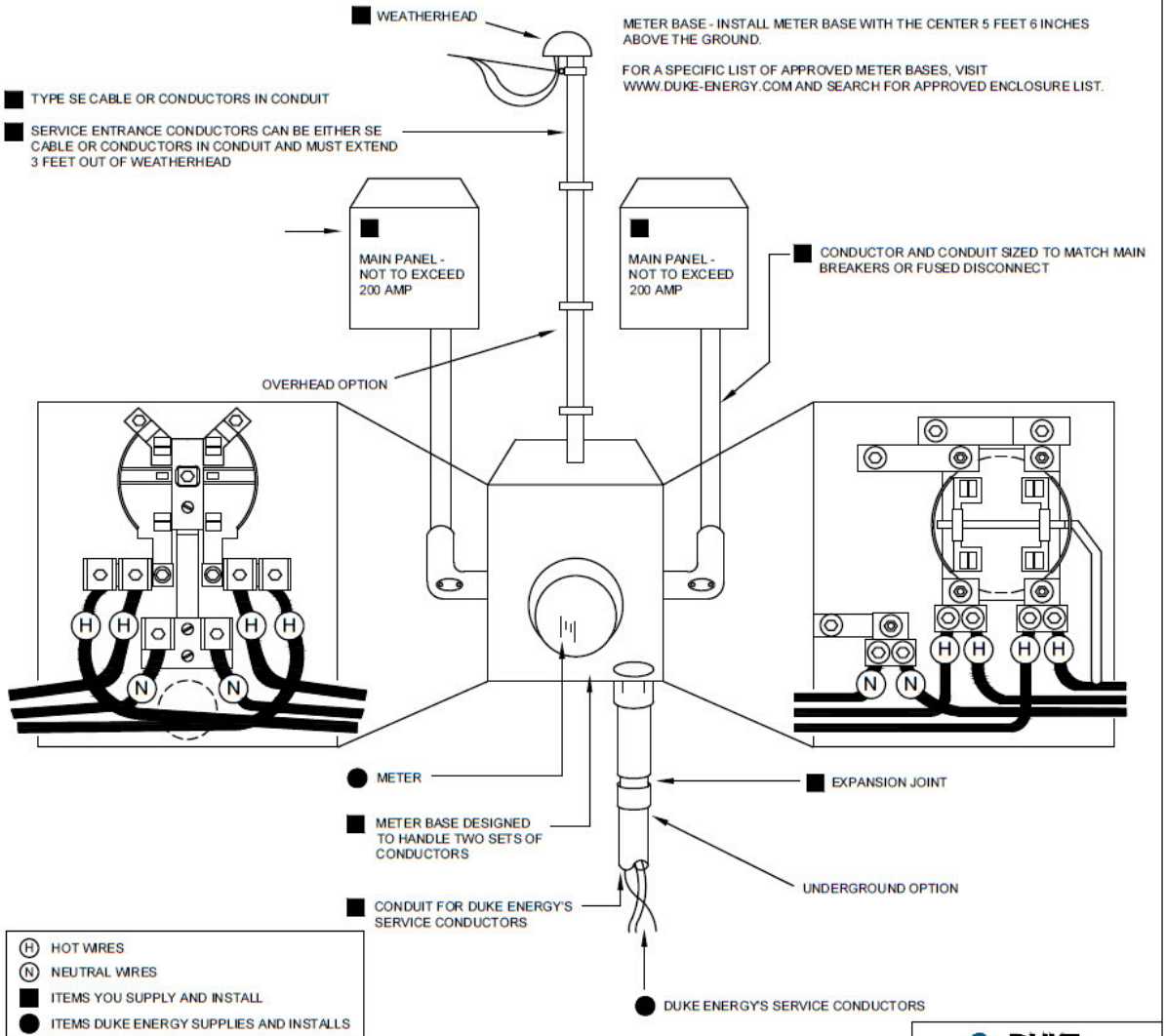
DEC	DEI	DEP	DEF
	X		

FIG 106B

PARALLEL MAIN PANELS FROM A SINGLE-METER BASE	METER BASE GUIDLINES
SERVICE TYPE - 120/240 VOLT, SINGLE PHASE 3-WIRE	DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
RESIDENTIAL OVERHEAD 200 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL OVERHEAD 400 AMP SERVICE, 1 METER POSITION	
RESIDENTIAL UNDERGROUND 400 AMP SERVICE, 1 METER POSITION	

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4
400 AMP**	600 KCMIL	500 KCMIL	400 KCMIL	350 KCMIL	3/0	1/0

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.
** ALL 400 AMP METER BASES MUST INCLUDE LINE SIDE LUGS THAT ACCOMMODATE 500 KCMIL WIRE.



ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

3					
2					
1					
0	12/13/17	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

PARALLEL MAIN PANELS FROM A SINGLE-METER BASE

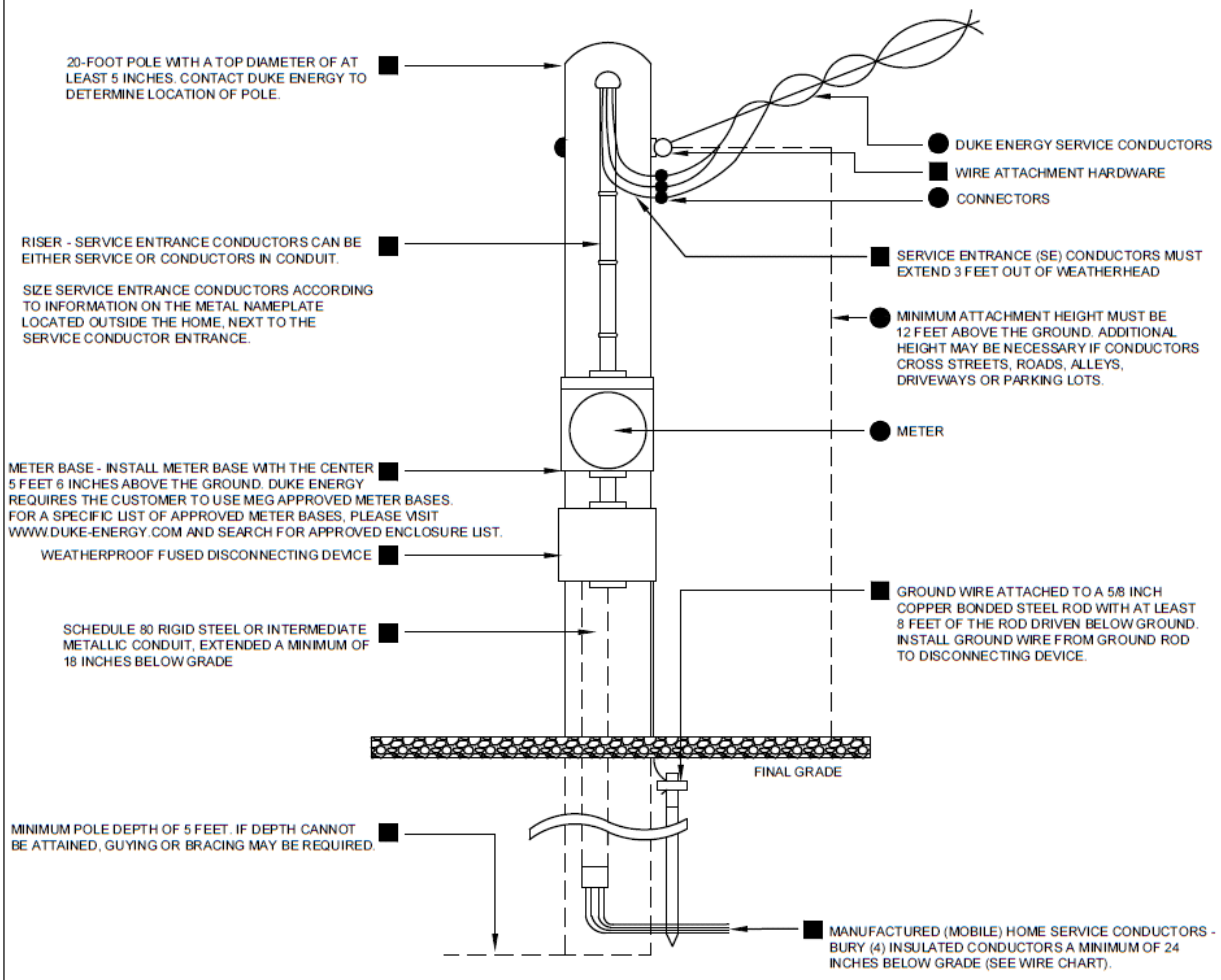
DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 107

BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.



(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

REVISED	BY	CK'D	APPR.
3			
2			
1			
0 — 12/13/17	DIETERLE	BRUINS	ADCOCK

PERMANENT OVERHEAD SERVICE POLE INCLUDING MANUFACTURED HOMES

DUKE ENERGY.

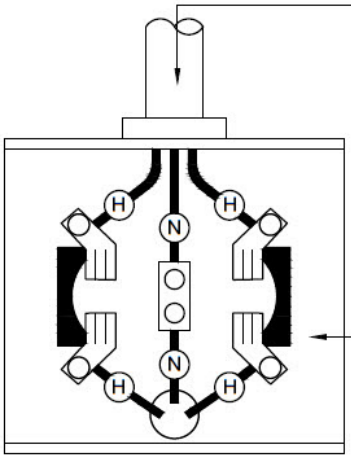
DEC	DEI	DEP	DEF
	X		

FIG 108

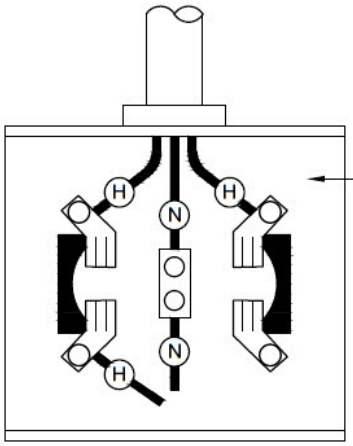
BREAKER SIZE	CUSTOMER WIRE SIZES - TYPICAL					
	(H) MINIMUM LINE CONDUCTOR		(N) NEUTRAL CONDUCTOR*		GROUND WIRE	
	ALUM.	COPPER	ALUM.	COPPER	ALUM.	COPPER
100 AMP	#2	#4	#4	#4	#6	#4
200 AMP	4/0	2/0	2/0	1/0	#2	#4

* NEUTRAL SIZE IS DETERMINED BY LOAD CALCULATION AND NEC TABLE 250.122. ALWAYS CHECK WITH LOCAL ELECTRIC CODE AUTHORITY.

OVERHEAD SERVICE - 3 WIRE 120/240 VOLT



OVERHEAD SERVICE - 3 WIRE 120/240 VOLT - 120V TO CUSTOMER

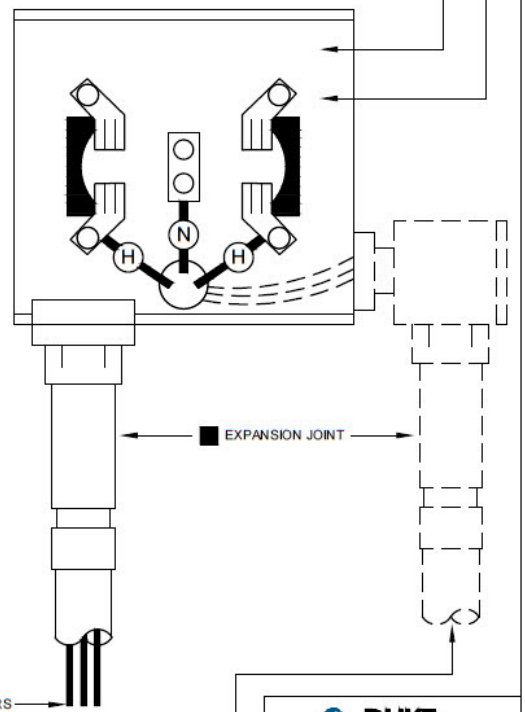


- CONDUCTORS IN CONDUIT OR SERVICE ENTRANCE CABLE TO WEATHERHEAD - SIZE ALL CUSTOMER SERVICE ENTRANCE CONDUCTORS TO RATED AMPACITY OF THE MAIN BREAKER OR THE FUSE DISCONNECT.
- METER BASE - THIS IS FOR INSTALLATION OF A SINGLE SET OF SERVICE ENTRANCE CONDUCTORS. FOR OTHER APPLICATIONS, PLEASE CONTACT DUKE ENERGY. INSTALL METER BASE WITH CENTER 5 FEET 6 INCHES ABOVE THE GROUND.
  DUKE ENERGY REQUIRES THE CUSTOMER TO USE MEG APPROVED METER BASES. FOR A SPECIFIC LIST OF APPROVED METER BASES, PLEASE VISIT WWW.DUKE-ENERGY.COM AND SEARCH FOR APPROVED ENCLOSURE LIST.
- UNDERGROUND METER BASE MUST BE MINIMUM 200 AMP.
- THE GROUND WIRE FROM YOUR MAIN PANEL TO THE GROUND ROD MUST BE CONTINUOUS. DUKE ENERGY RECOMMENDS THAT THE GROUND WIRE NOT BE ROUTED THROUGH THE METER BASE. IF IT IS ROUTED THROUGH THE METER BASE, HOWEVER, PLEASE BE SURE THAT:

  A. THE GROUND WIRE IS NOT CONNECTED TO THE METER BASE, AND

  B. THE GROUND WIRE IS INSTALLED IN A CONDUIT FROM THE METER BASE TO GROUND IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE REQUIREMENTS. FOR MORE INFORMATION, PLEASE REFER TO NEC ARTICLE 250-92.

UNDERGROUND SERVICE - 3 WIRE 120/240 VOLT



(H) HOT WIRES
(N) NEUTRAL WIRES
■ ITEMS YOU SUPPLY AND INSTALL
● ITEMS DUKE ENERGY SUPPLIES AND INSTALLS

ALL EQUIPMENT MUST BE IN GOOD CONDITION AND INSTALLED TO MEET NATIONAL ELECTRICAL CODE REQUIREMENTS.

● DUKE ENERGY SERVICE CONDUCTORS
■ ALTERNATE ROUTE FOR SERVICE ENTRANCE CONDUCTORS

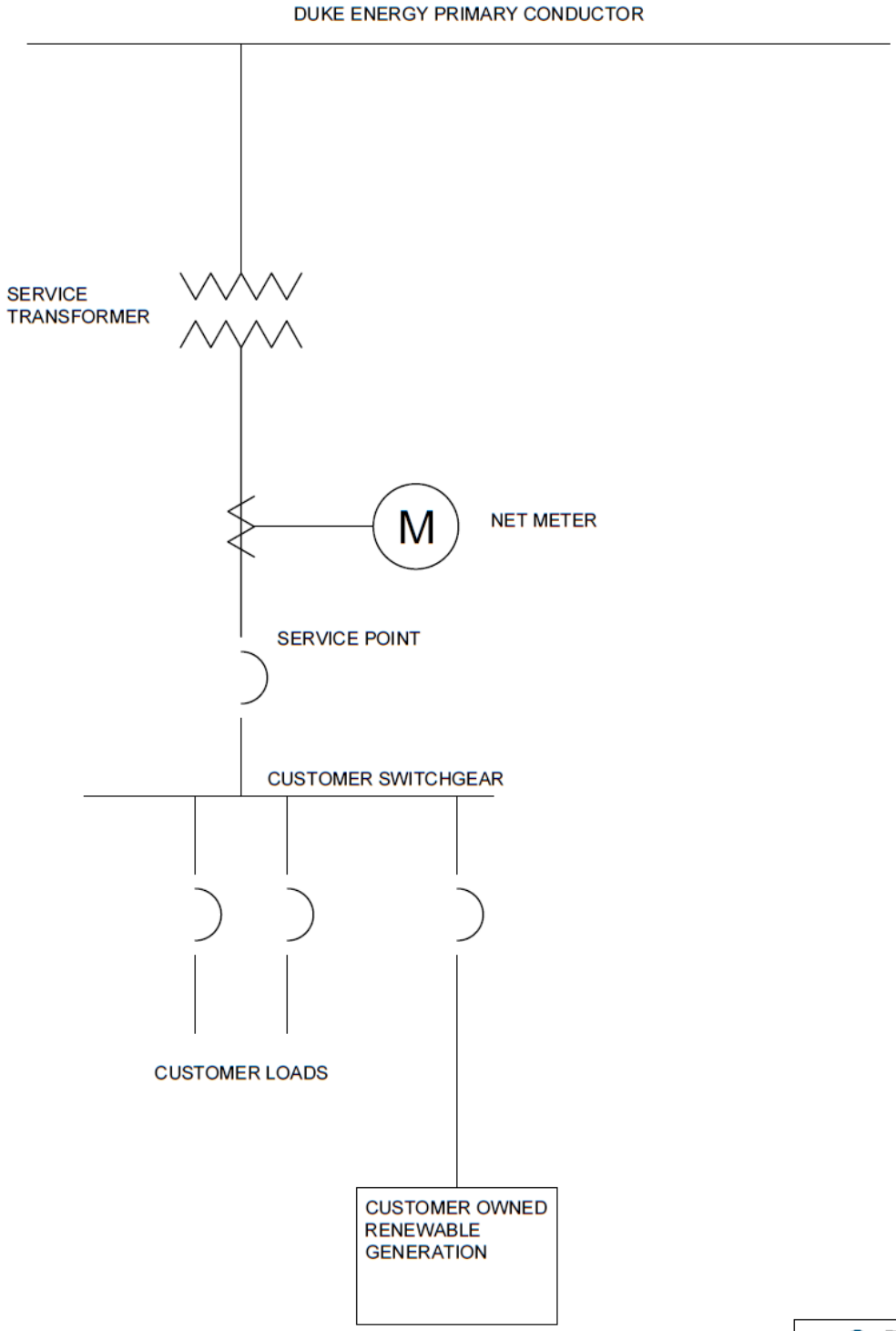
DUKE ENERGY.

3				
2				
1				
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

SINGLE-PHASE METER BASE WIRING

DEC	DEI	DEP	DEF
	X		

FIG 109



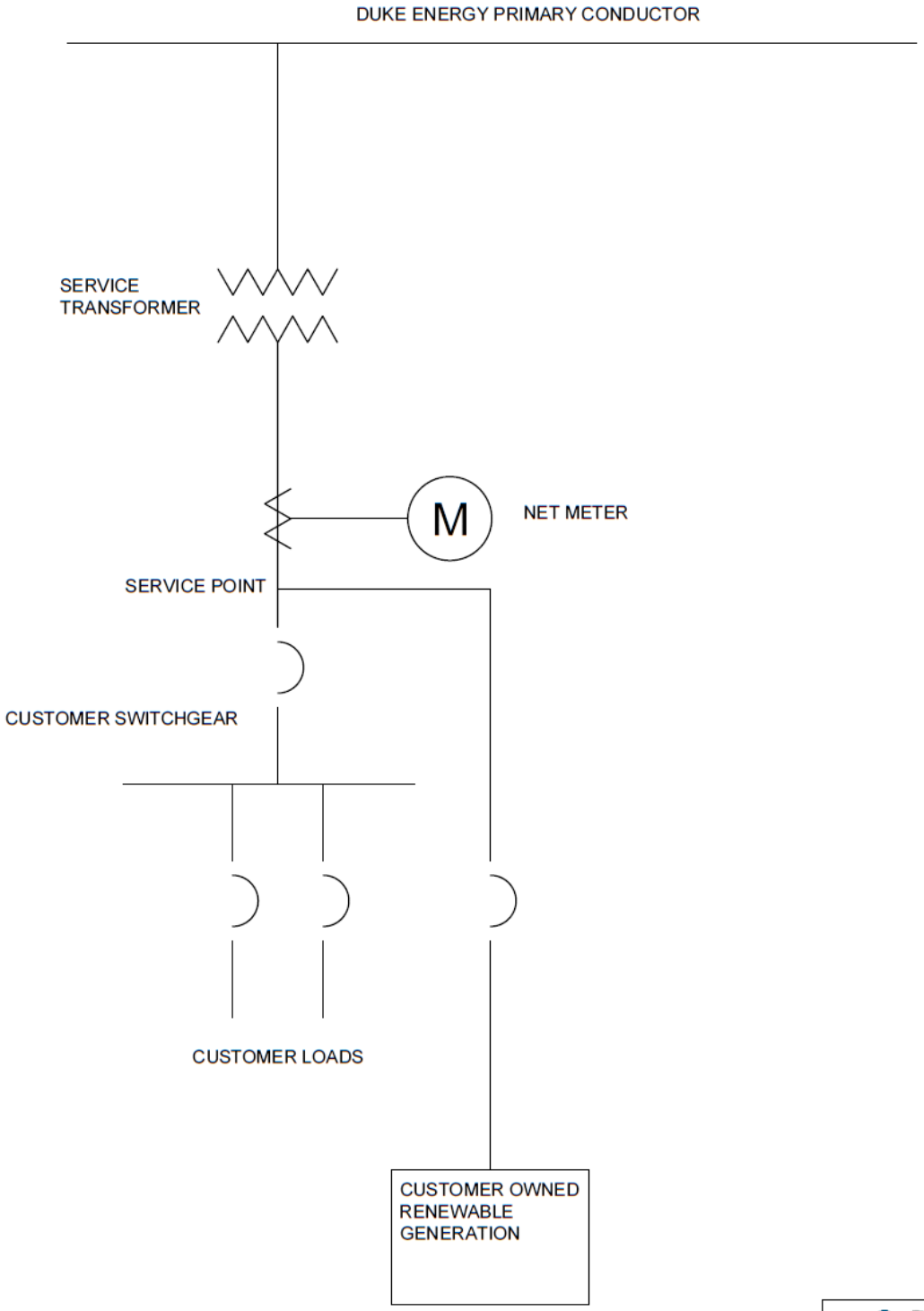
DUKE ENERGY.

3					
2					
1					
0	12/13/17	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

PREFERRED NET METERING INTERCONNECTION

DEC	DEI	DEP	DEF
	X		

FIG 110A



DUKE ENERGY.

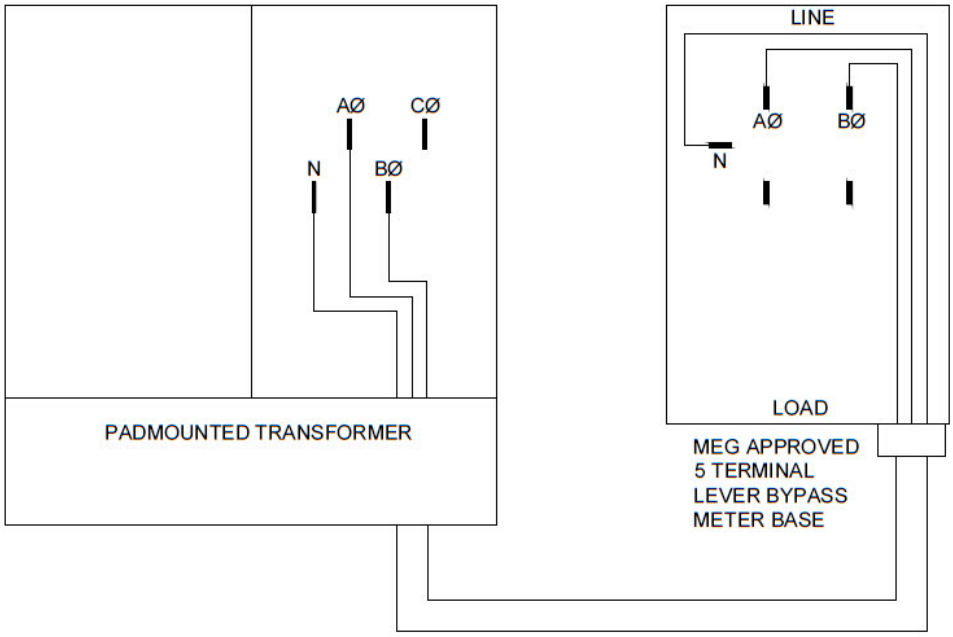
3				
2				
1				
0	12/13/17	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

ALTERNATE NET METERING INTERCONNECTION

DEC	DEI	DEP	DEF
	X		

FIG 110B

1Ø 120/208
"NETWORK" TYPE SERVICE



NOTES:

1. WIRE MUST BE IN CONDUIT BETWEEN TRANSFORMER AND METER BASE.

3				
2				
1				
0	1/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

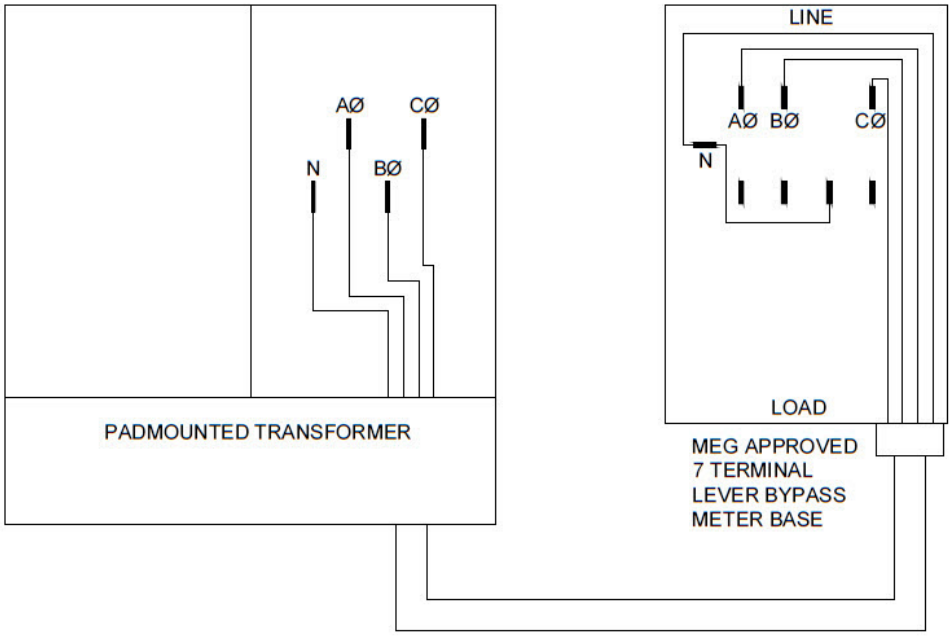
TEMPORARY SERVICE FROM
THREE-PHASE TRANSFORMER

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 111A

3Ø 208Y/120
SERVICE



NOTES:

1. WIRE MUST BE IN CONDUIT BETWEEN TRANSFORMER AND METER BASE.
2. CUSTOMER MAY PULL 4-WIRE OR 3-WIRE OFF LOADSIDE

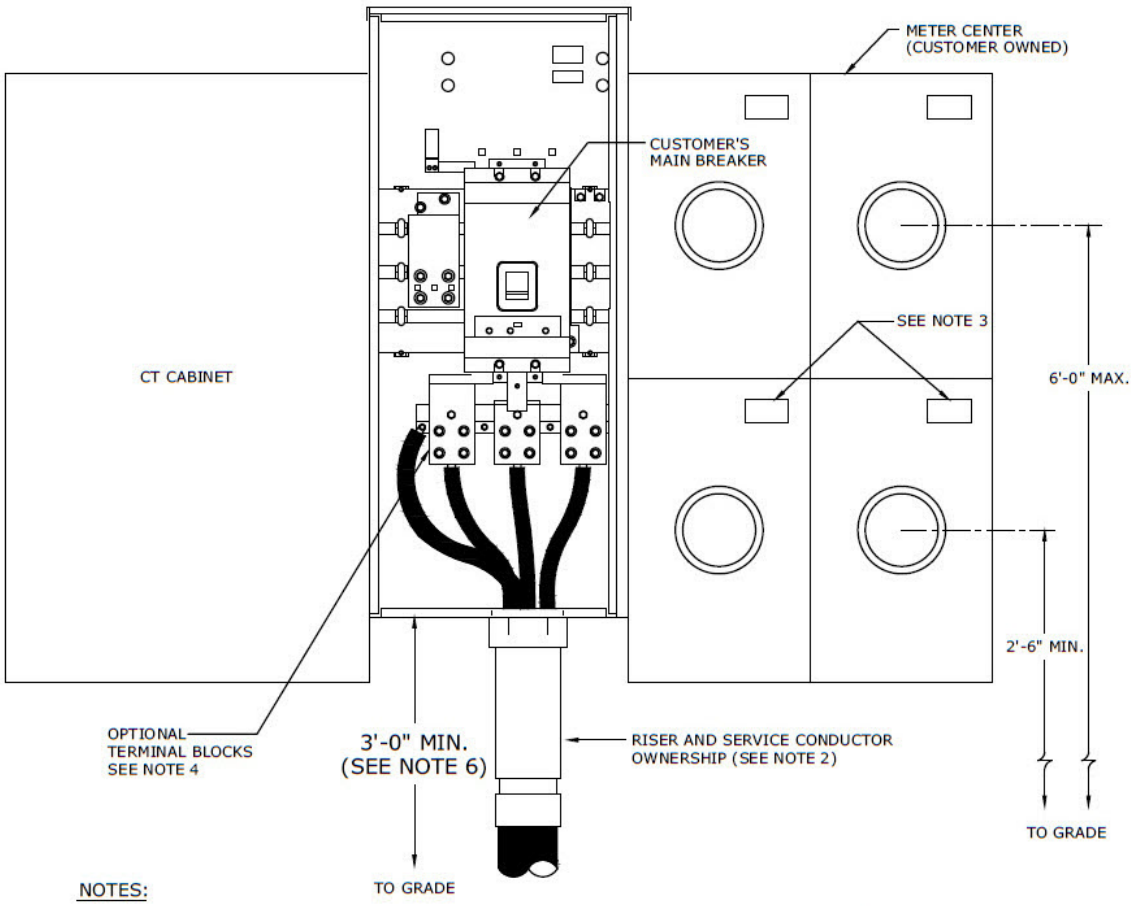
3				
2				
1				
0	1/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

TEMPORARY SERVICE FROM
THREE-PHASE TRANSFORMER

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 111B



NOTES:

1. U.L. LISTED METER CENTER TO BE FURNISHED AND OWNED BY THE CUSTOMER. ELECTRICAL CONTRACTOR TO INSTALL ON THE OUTSIDE OF THE BUILDING WALL AND TO BOND TO NEUTRAL.

2. SERVICE RISER AND CONDUCTOR OWNERSHIP:

   A. SINGLE-PHASE SERVICES: THE COMPANY
   B. THREE-PHASE SERVICES: CONTACT THE COMPANY REPRESENTATIVE FOR SERVICE RISER AND CONDUCTOR OWNERSHIP.

3. LABEL EACH SOCKET COVER AS SHOWN IN FIGURE 3.

4. SERVICE POINT:

   A. SINGLE-PHASE SERVICES: SERVICE POINT WILL BE WHERE COMPANY CONDUCTORS ATTACH TO MAIN DISCONNECT. IF LOCAL INSPECTION AUTHORITY OBJECTS TO COMPANY CABLES IN UL RATED TERMINALS OF MAIN BREAKER, THE CUSTOMER WILL PROVIDE THE APPROPRIATE TERMINAL BLOCKS OFF THE BREAKER TO ATTACH COMPANY CABLES. TERMINAL BLOCKS MUST BE SIZED 3/0-500 KCMIL AL OR CU MINIMUM, DOUBLE LUGGED IF NECESSARY TO ACCOMMODATE COMPANY SERVICE.
   B. THREE-PHASE SERVICES: FOR THE SERVICE POINT, CONTACT THE COMPANY REPRESENTATIVE.

5. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

6. IF MINIMUM HEIGHT ABOVE GRADE CANNOT BE OBTAINED, LOWER HEIGHTS WILL BE ALLOWED WITH CERTAIN PROVISIONS. CUSTOMER MUST PROVIDE AND INSTALL SCHEDULE 40 PVC BENDS WITH A MINIMUM 36" RADIUS (QUANTITY AND SIZE DETERMINED BY COMPANY REPRESENTATIVE) AND A PULL STRING. APPROPRIATE METER HEIGHTS MUST STILL BE MAINTAINED IN ALL CASES. CONDUCTOR TERMINAL BLOCKS OR MAIN BREAKER MUST BE OF SUFFICIENT HEIGHT TO ALLOW FOR PROPER TRAINING OF CABLE.

7. CT CABINET OWNED BY COMPANY AND INSTALLED BY CUSTOMER ON OUTSIDE WALL OR APPROVED STRUCTURE. SEE FIGURE 101.

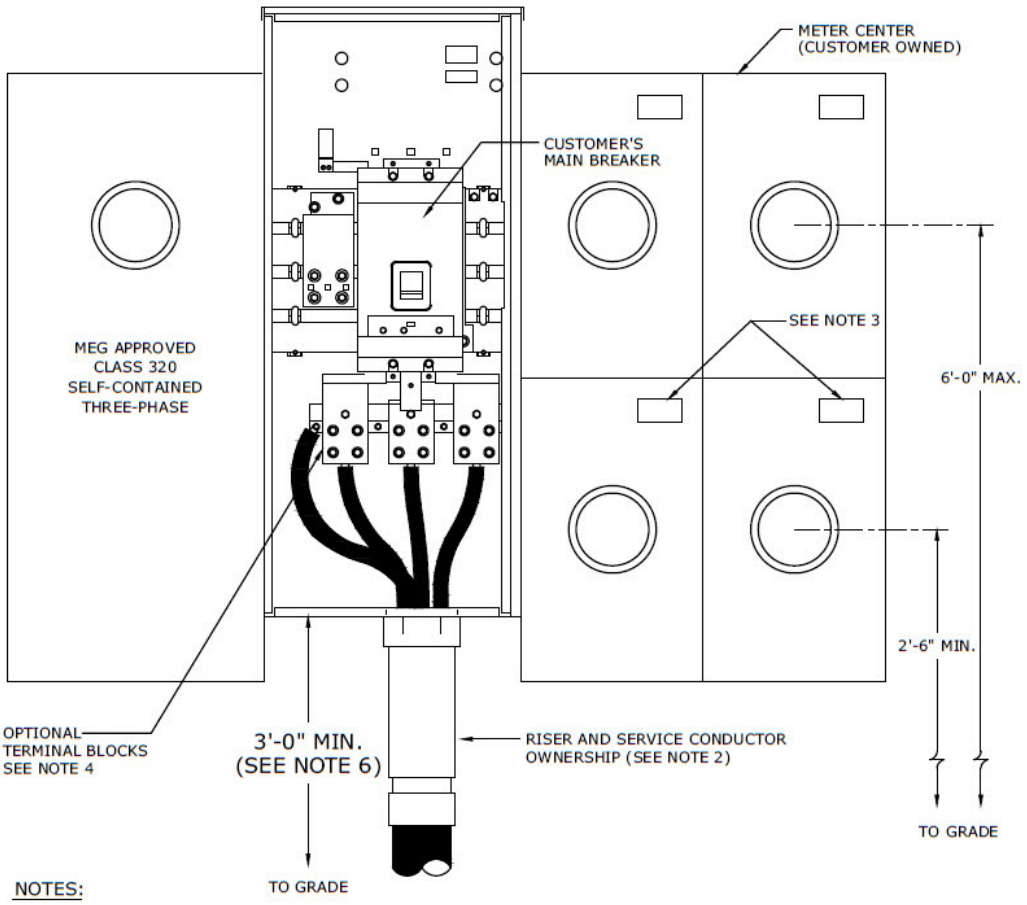
DUKE ENERGY.

3				
2				
1				
0	11/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

NETWORK METER INSTALLATION
(MAIN DISCONNECT - GREATER THAN 6 METERS)
WITH CT CABINET

DEC	DEI	DEP	DEF
	X		

FIG 112



NOTES:

1. U.L. LISTED METER CENTER TO BE FURNISHED AND OWNED BY THE CUSTOMER. ELECTRICAL CONTRACTOR TO INSTALL ON THE OUTSIDE OF THE BUILDING WALL AND TO BOND TO NEUTRAL.

2. SERVICE RISER AND CONDUCTOR OWNERSHIP:

   A. SINGLE-PHASE SERVICES: THE COMPANY
   B. THREE-PHASE SERVICES: CONTACT THE COMPANY REPRESENTATIVE FOR SERVICE RISER AND CONDUCTOR OWNERSHIP.

3. LABEL EACH SOCKET COVER AS SHOWN IN FIGURE 3.

4. SERVICE POINT:

   A. SINGLE-PHASE SERVICES: SERVICE POINT WILL BE WHERE COMPANY CONDUCTORS ATTACH TO MAIN DISCONNECT. IF LOCAL INSPECTION AUTHORITY OBJECTS TO COMPANY CABLES IN UL RATED TERMINALS OF MAIN BREAKER, THE CUSTOMER WILL PROVIDE THE APPROPRIATE TERMINAL BLOCKS OFF THE BREAKER TO ATTACH COMPANY CABLES. TERMINAL BLOCKS MUST BE SIZED 3/0-500 KCMIL AL OR CU MINIMUM, DOUBLE LUGGED IF NECESSARY TO ACCOMMODATE COMPANY SERVICE.
   B. THREE-PHASE SERVICES: FOR THE SERVICE POINT, CONTACT THE COMPANY REPRESENTATIVE.

5. SEE NEC ARTICLE 250 FOR GROUNDING DETAILS.

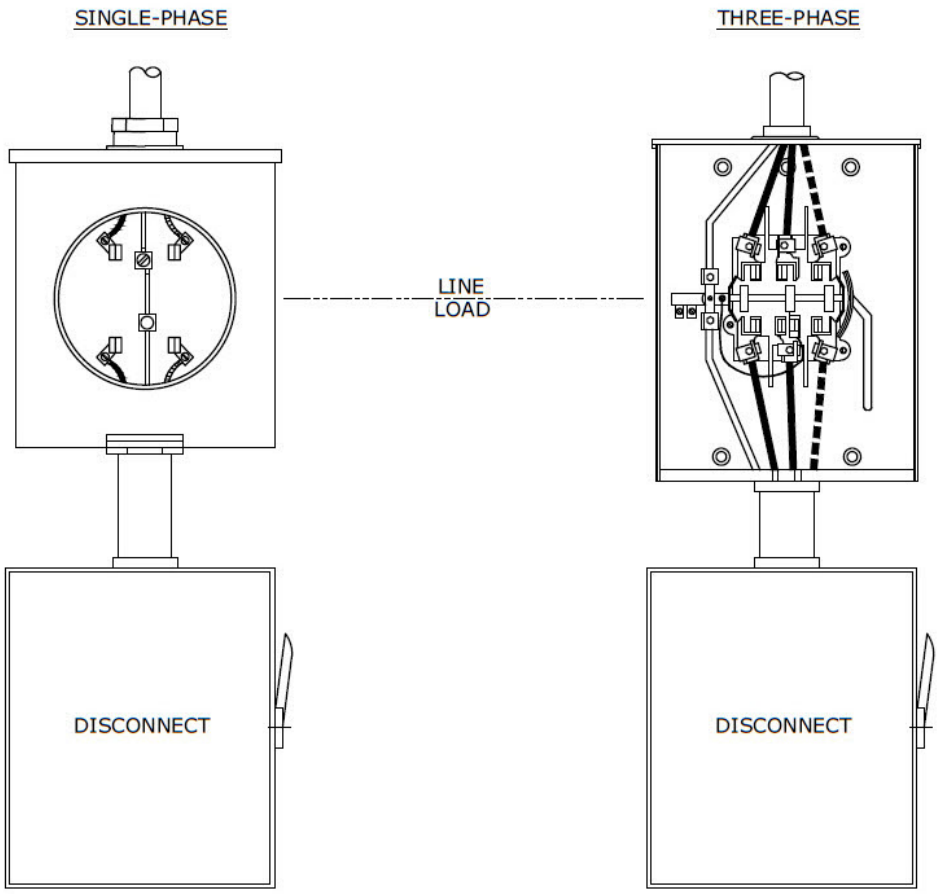
6. IF MINIMUM HEIGHT ABOVE GRADE CANNOT BE OBTAINED, LOWER HEIGHTS WILL BE ALLOWED WITH CERTAIN PROVISIONS. CUSTOMER MUST PROVIDE AND INSTALL SCHEDULE 40 PVC BENDS WITH A MINIMUM 36" RADIUS (QUANTITY AND SIZE DETERMINED BY COMPANY REPRESENTATIVE) AND A PULL STRING. APPROPRIATE METER HEIGHTS MUST STILL BE MAINTAINED IN ALL CASES. CONDUCTOR TERMINAL BLOCKS OR MAIN BREAKER MUST BE OF SUFFICIENT HEIGHT TO ALLOW FOR PROPER TRAINING OF CABLE.

DUKE ENERGY.

3					NETWORK METER INSTALLATION (MAIN DISCONNECT - GREATER THAN 6 METERS) WITH CLASS 320 SELF-CONTAINTED THREE-PHASE
2					
1					
0	11/15/18	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

DEC	DEI	DEP	DEF
	X		

FIG 113



NOTES:

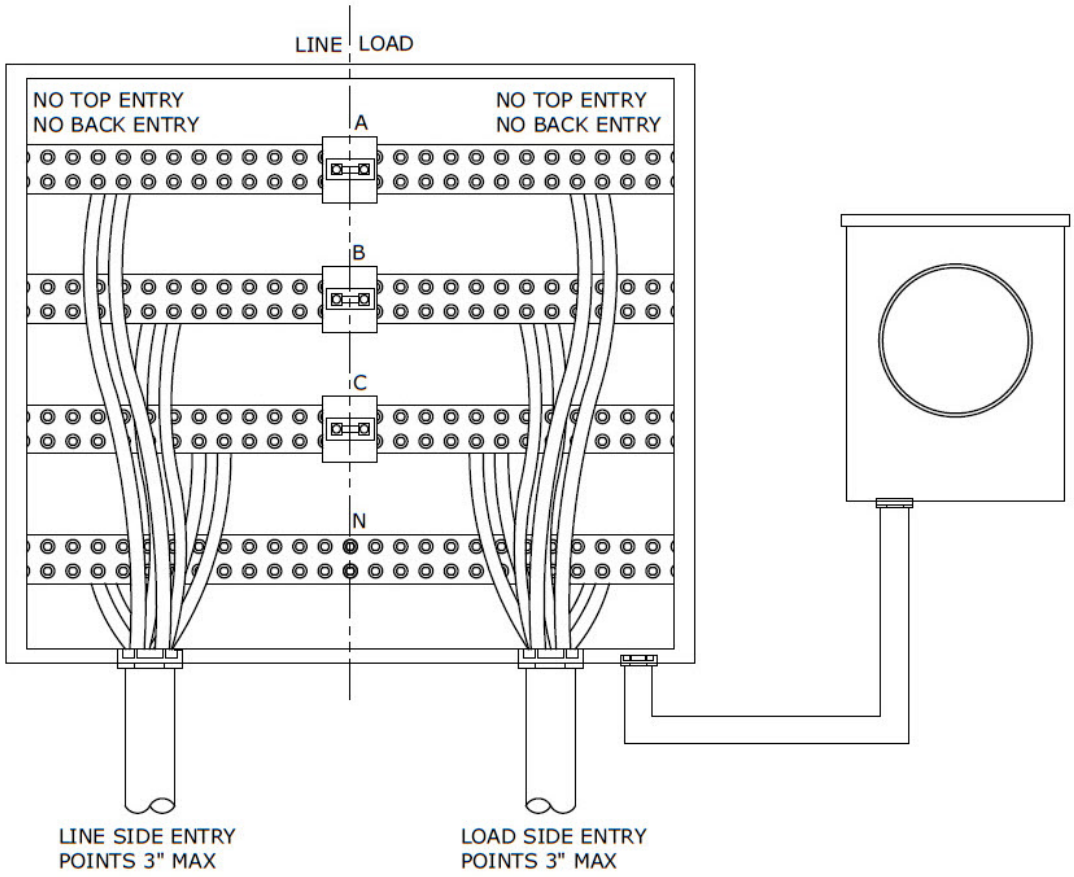
1. DISCONNECT MUST BE ON LOAD SIDE OF THE METER.

3					APPROVED DISCONNECT ON SINGLE-PHASE & THREE-PHASE METER BASES
2					
1					
0	11/15/18	DIETERLE	BRUINS	ADCOCK	
REVISED		BY	CK'D	APPR.	

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 114



NOTES:

1. ALL LINE AND LOAD SIDE CONNECTIONS MADE BY THE COMPANY
2. INSTALLATION OF THE METER BASE CAN BE TO THE RIGHT OR LEFT OF BUSBAR CABINET
3. BUSBAR CABINET IS CUSTOMER OWNED AND INSTALLED
4. OVERHEAD RISER ENTRY ONLY WITH APPROVAL BY THE COMPANY (3" MAX)
5. WIRE SIZE LIMITED TO 500 KCMIL OR 750 KCMIL, WHICHEVER THE CABINET ACCEPTS
6. ONLY ONE CUSTOMER CAN BE METERED PER BUSBAR CABINET UNLESS APPROVED BY FIELD METERING
7. INSTALLATION LOCATION AND HEIGHT SHOULD FOLLOW CT CABINET REQUIREMENTS

DUKE ENERGY.

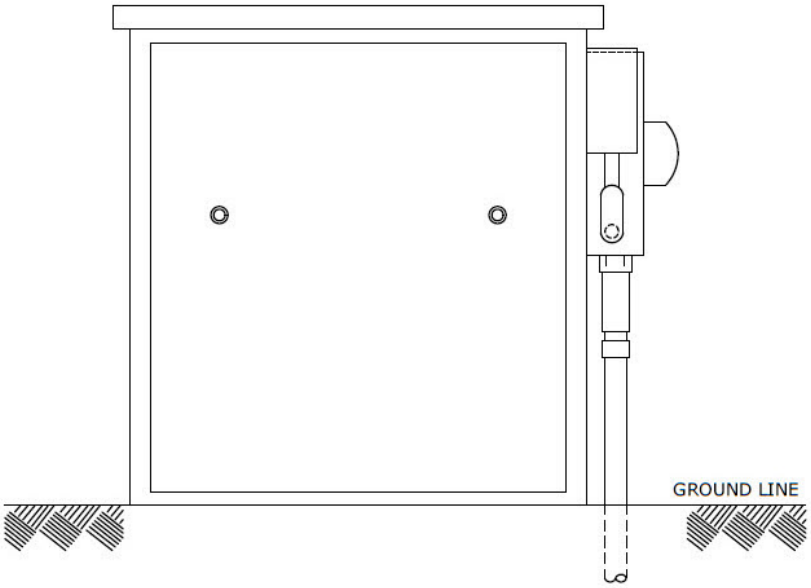
3				
2				
1				
0	11/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

BUSBAR CABINET INSTALLATION WITH ACCEPTABLE LOCATION FOR SERVICE ENTRY/EXIT AND CT/METER BASE INSTALL

DEC	DEI	DEP	DEF
	X		

FIG 115

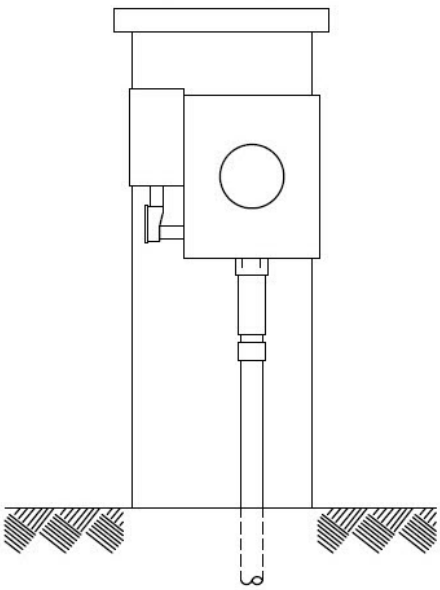
FRONT VIEW



NOTES:

1. SINGLE-PHASE SELF-CONTAINED 3-WIRE 240V SERVICE ONLY PROVIDED BY COMPANY.
2. METER MUST BE INSTALLED AT THE EXTERIOR OF THE CABINET AND NOT "ENCLOSED" IN ANY STRUCTURE, RECESS, OR CAVITY.
3. CUSTOMER MUST PROVIDE AND INSTALL MEG APPROVED 3-WIRE METER BASE.
4. METER SOCKET & EXPANSION JOINT FURNISHED & INSTALLED BY THE CUSTOMER (METER SOCKET MUST BE PLUMB).
5. METER & UG SERVICE CABLE TO BE FURNISHED & INSTALLED BY THE COMPANY.

SIDE VIEW



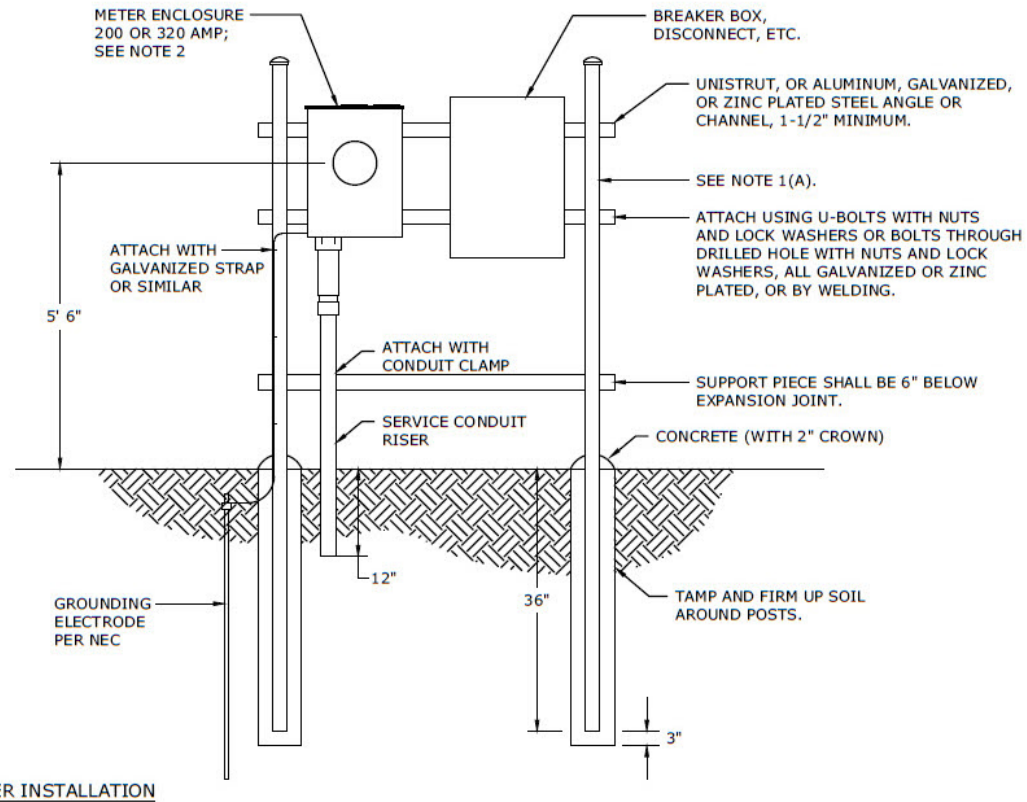
3				
2				
1				
0	11/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

SELF-CONTAINED METERING
ON PHONE/CATV BOX STATION

DUKE ENERGY.

DEC	DEI	DEP	DEF
	X		

FIG 116



CUSTOMER INSTALLATION

1. CUSTOMER WILL FURNISH AND INSTALL:

   (A) H FRAME POSTS SHALL BE 2" PIPE OR LARGER WITH END CAPS, 2" (OD) OR LARGER TUBING WITH END CAPS, OR 2" OR LARGER CHANNEL, OR EQUIVALENT, ALL GALVANIZED, ZINC PLATED, OR ALUMINUM.
   (B) H FRAME POSTS SHALL BE SUPPORTED IN PROPER CONCRETE FOOTERS EXTENDING BELOW THE FROST LINE.
   (C) SERVICE GROUND IN ACCORDANCE WITH NEC.
   (D) ALL EQUIPMENT, MOUNTING HEIGHTS, AND CLEARANCES BEYOND THE METER SOCKET IN ACCORDANCE WITH NEC.
   (E) ALL CONNECTIONS IN ACCORDANCE WITH NEC.
   (F) MOBILE HOME SERVICES - H FRAME SHALL BE INSTALLED 18" MIN. FROM THE MOBILE HOME FOR MOUNTING THE SERVICE RISER, METER SOCKET, AND SERVICE EQUIPMENT. METERING EQUIPMENT SHALL FACE AWAY FROM MOBILE HOME SUCH THAT METER IS EASILY READABLE AND ACCESSIBLE. OTHER CONSTRUCTION IS PERMISSIBLE WITH DISTRIBUTION ENGINEERING APPROVAL.

2. CUSTOMER WILL FURNISH, INSTALL, AND OWN METER SOCKET. TOP OF SOCKET MUST BE LEVEL FRONT TO FRONT TO BACK AND SIDE TO SIDE.

3. SPACE BETWEEN SUPPORTS SHOULD BE A MINIMUM AREA OF 2' H X 3' W (SELF-CONTAINED) AND 5' H X 4' W (CT CABINET).

4. MINIMUM OF TWO CORNER POSTS.

5. FASTENERS MUST BE WEATHER RESISTANT AND OF ADEQUATE LENGTH TO SECURE THE STRUCTURE AND ATTACHMENTS.

COMPANY INSTALLATION

6. COMPANY WILL PROVIDE AND INSTALL THE UNDERGROUND SERVICE LATERAL ACCORDING TO COMPANY'S STANDARD PRACTICES.

7. BOTTOM OF TRENCH MUST BE FIRMLY TAMPED NEAR H-FRAME. CABLE MUST BE POSITIONED FIRMLY AGAINST TAMPED EARTH DURING BACKFILLING. BEFORE CABLE IS CUT AFTER BACK-FILLING, PUSH CABLE DOWN IN CONDUIT TO PROVIDE AS MUCH SLACK AS POSSIBLE. THIS IS NECESSARY TO PREVENT SETTLING OF EARTH FROM PULLING ON CABLE AND DAMAGING METER BASE TERMINALS.

8. SERVICE POINT IS WHERE COMPANY'S CONDUCTORS ATTACH TO METER SOCKET.

DUKE ENERGY.

3				
2				
1				
0	11/15/18	DIETERLE	BRUINS	ADCOCK
REVISED		BY	CK'D	APPR.

UNDERGROUND PERMANENT SERVICE

H FRAME STRUCTURE MOUNTED

DEC	DEM	DEP	DEF
	X		

FIG 117

Questions?
Be safe, not sorry.

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Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure shows the details of meter base wiring for underground single-phase, 120/240 volt installations. The maximum service size for these installations is 400 amperes.

The illustration inside shows the items you are responsible for supplying and/or installing. If you have questions about any of these specifications or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246** to apply for service. We will be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist for Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner. Nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

Duke Energy may revise, without notice, the requirements outlined in this brochure. The customer is obligated to maintain its facilities in accordance with all applicable revised Duke Energy requirements.

All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

Stay away from power lines.

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Customer-owned permanent underground meter structures

DUKE ENERGY®

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Customer-owned permanent underground meter structures

Permanent underground service	Meter base guidelines
Service type – 120/240 volt, single-phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Overhead/Underground 200 amp service, 1 meter position	
Residential Underground 400 amp service, 1 meter position	

For a specfic list of approved meters, visit duke-energy.com and search for approved enclosure list.

Breaker size	Customer wire sizes – typical					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
200 amp	4/0	2/0	2/0	1/0	#2	#4
400 amp**	600 kcmil	500 kcmil	400 kcmil	350 kcmil	3/0	1/0

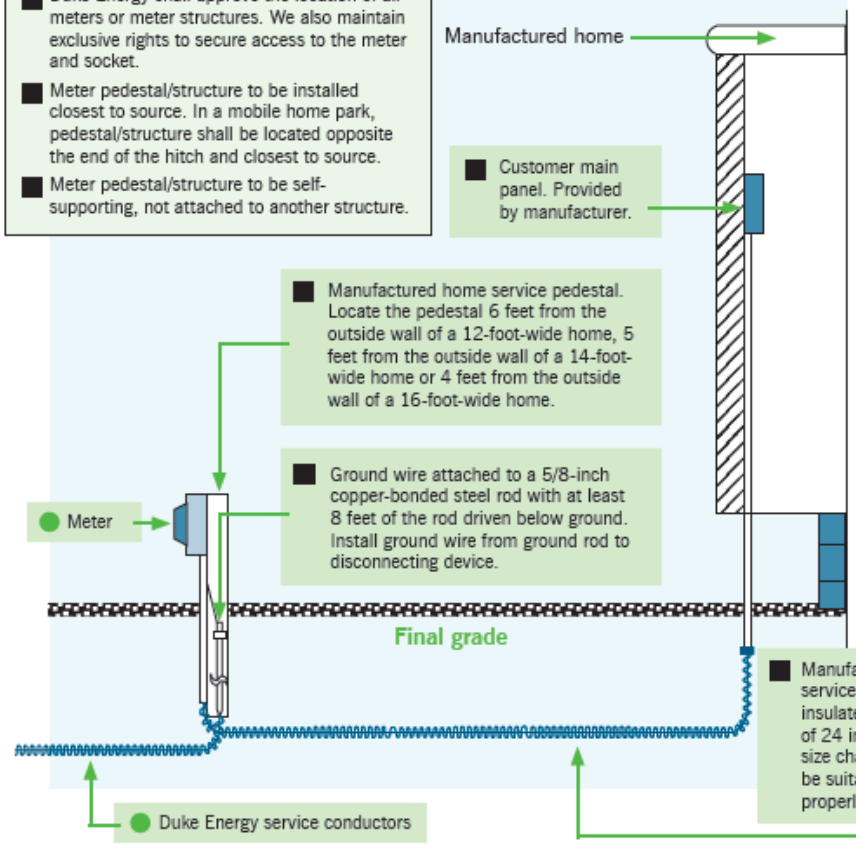
* Neutral size is determined by load calculation and NEC table 250.122.
Always check with local electric code authority.
** All 400 amp meter bases must include line side lugs that accommodate 500 kcmil wire.

General information for all examples

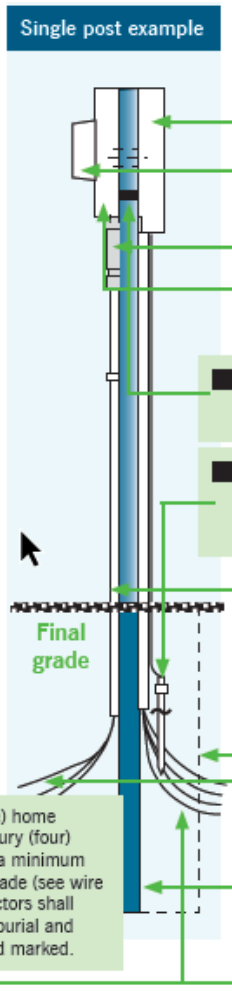
- Duke Energy will install meter base wiring to the top lugs.
- Mark all underground obstacles within the trenching area.
- Duke Energy will not be responsible for damage to unmarked underground equipment.
- Duke Energy shall approve the location of all meters or meter structures. We also maintain exclusive rights to secure access to the meter and socket.
- Meter pedestal/structure to be installed closest to source. In a mobile home park, pedestal/structure shall be located opposite the end of the hitch and closest to source.
- Meter pedestal/structure to be self-supporting, not attached to another structure.

- Ⓗ Hot wires
- Ⓝ Neutral wires
- Items you supply and install
- Items Duke Energy supplies and installs

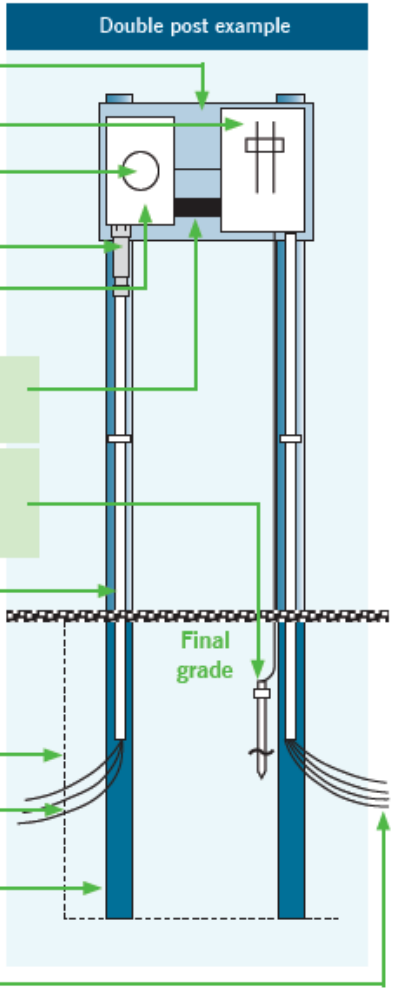
Manufactured home meter pedestal example



Single post example



Double post example



All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Questions?
Be safe, not sorry.
800.774.0246

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure outlines the steps to be completed before your permanent overhead service can be connected.

The illustration inside shows the items you are responsible for supplying and/or installing. If you have questions about any of these specifications or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246** to apply for service. We will be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist For Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner. Nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

Duke Energy may revise, without notice, the requirements outlined in this brochure. The customer is obligated to maintain its facilities in accordance with all applicable revised Duke Energy requirements.

All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

Stay away from power lines.

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Permanent overhead service

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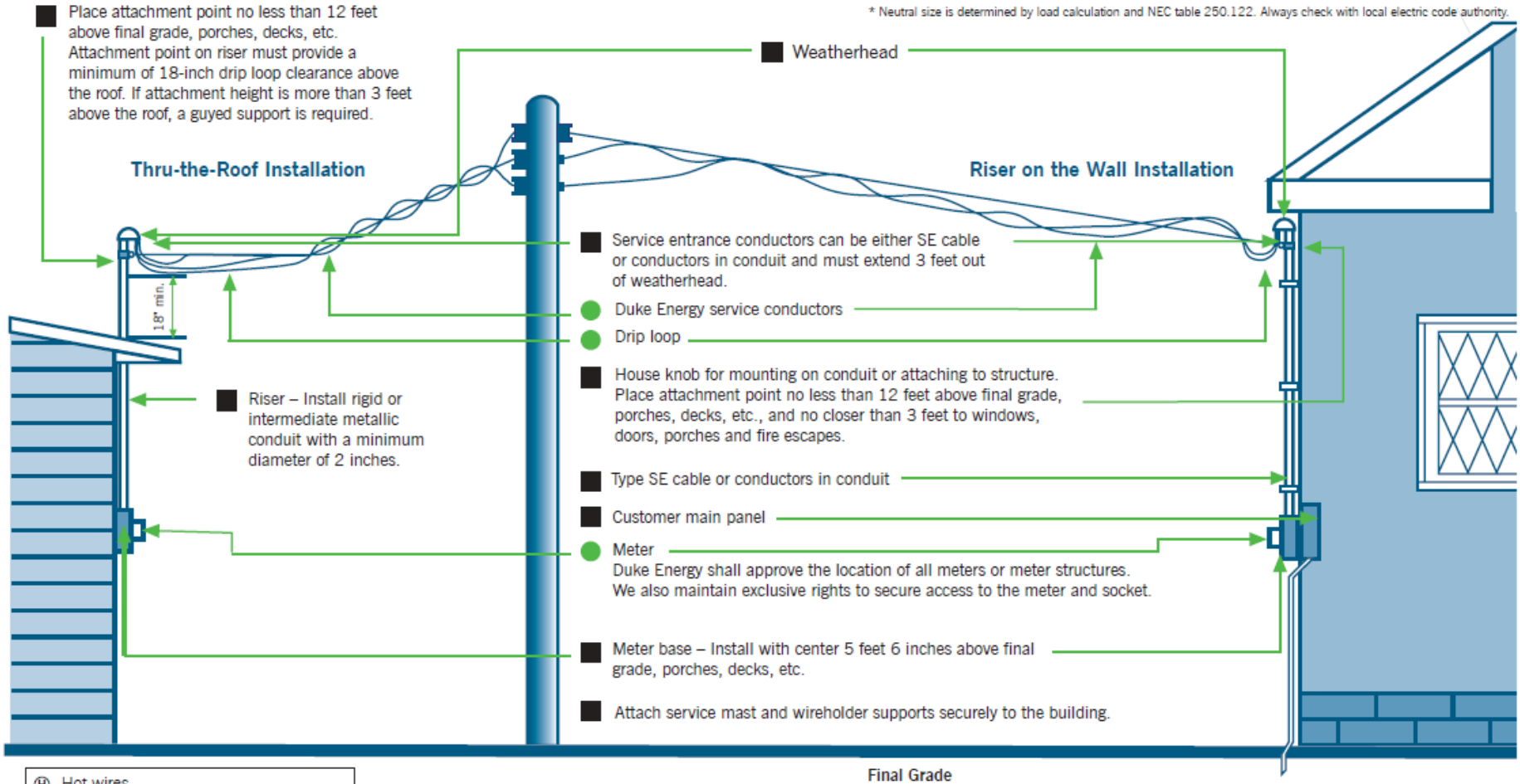
Permanent overhead service

Permanent overhead service	Meter base guidelines
Service type – 120/240 volt, single phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Overhead 100 amp service, 1 meter position	
Residential Overhead/Underground 200 amp service, 1 meter position	
Residential Overhead/Underground 400 amp service, 1 meter position	

Breaker size	Customer wire sizes – typical					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4
400 amp	600 kcmil	500 kcmil	400 kcmil	350 kcmil	3/0	1/0

* Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.



Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Electrical Service Installation Guide

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure outlines the steps to be completed before your permanent overhead service can be connected – it details specifications for meter-base wiring for overhead single-phase, 120/240 volt installations. The maximum service size for these installations is 200 amperes.

The illustration inside shows the items you are responsible for supplying and/or installing, as well as those that Duke Energy provides. If you have questions about any of these specifications, or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246**. We'll be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist For Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner. Nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

Duke Energy may revise, without notice, the requirements outlined in this brochure. The customer is obligated to maintain its facilities in accordance with all applicable revised Duke Energy requirements.

All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

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Permanent overhead service pole including manufactured (mobile) homes

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Permanent overhead service pole including manufactured homes

20 foot pole with a top diameter of at least 5 inches. Contact Duke Energy to determine location of pole.

Riser – Service entrance conductors can be either SE cable or conductors in conduit.

Size service entrance conductors according to information on the metal nameplate located outside the home, next to the service conductor entrance.

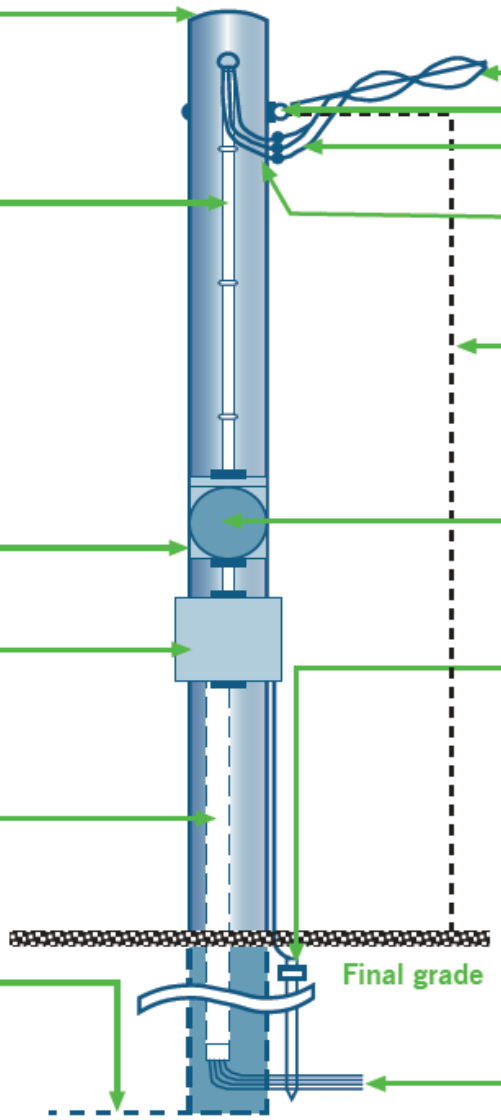
Meter base – Install meter base with the center 5 feet 6 inches above the ground.

Duke Energy requires the customer to use MEG approved meter bases. For a specific list of approved meter bases, please visit **duke-energy.com** and search approved enclosure list.

Weatherproof fused disconnecting device

Schedule 80, rigid steel or intermediate metallic conduit, extended a minimum of 18 inches below grade.

Minimum pole depth of 5 feet. If depth cannot be attained, guying or bracing may be required.



Duke Energy service conductors

Wire attachment hardware

Connectors

Service entrance (SE) conductors must extend 3 feet out of weatherhead.

Minimum attachment height must be 12 feet above the ground. Additional height may be necessary if conductors cross streets, roads, alleys, driveways or parking lots.

Meter

Ground wire attached to a 5/8-inch copper bonded steel rod with at least 8 feet of the rod driven below ground. Install ground wire from ground rod to disconnecting device.

Manufactured (mobile) home service conductors – Bury (4) insulated conductors, a minimum of 24 inches below grade (see wire chart).

Breaker size	**Customer wire sizes** – typical Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4

*Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.

Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Questions?
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Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure outlines the steps to be completed before your permanent underground service can be connected.

The illustration inside shows the items you are responsible for supplying and/or installing. If you have questions about any of these specifications or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246** to apply for service. We will be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist for Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner. Nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

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All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

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Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

Stay away from power lines.

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Permanent underground service

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Permanent underground service

Permanent underground service	Meter base guidelines
Service type – 120/240 volt, single phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Overhead/Underground 200 amp service, 1 meter position	
Residential Underground 400 amp service, 1 meter position	

Duke Energy shall approve the location of all meters or meter structures. We also maintain exclusive rights to secure access to the meter and socket.

The meter base should be located on the structure at the point closest to the supply of power to avoid additional charges.

Meter base 200 amp or larger – Install with the center 5 feet 6 inches above final grade. Recommended that meter base no closer than 3 feet from windows and doors.

Customer is responsible to protect shrubs, trees, grass and other landscaping during construction.

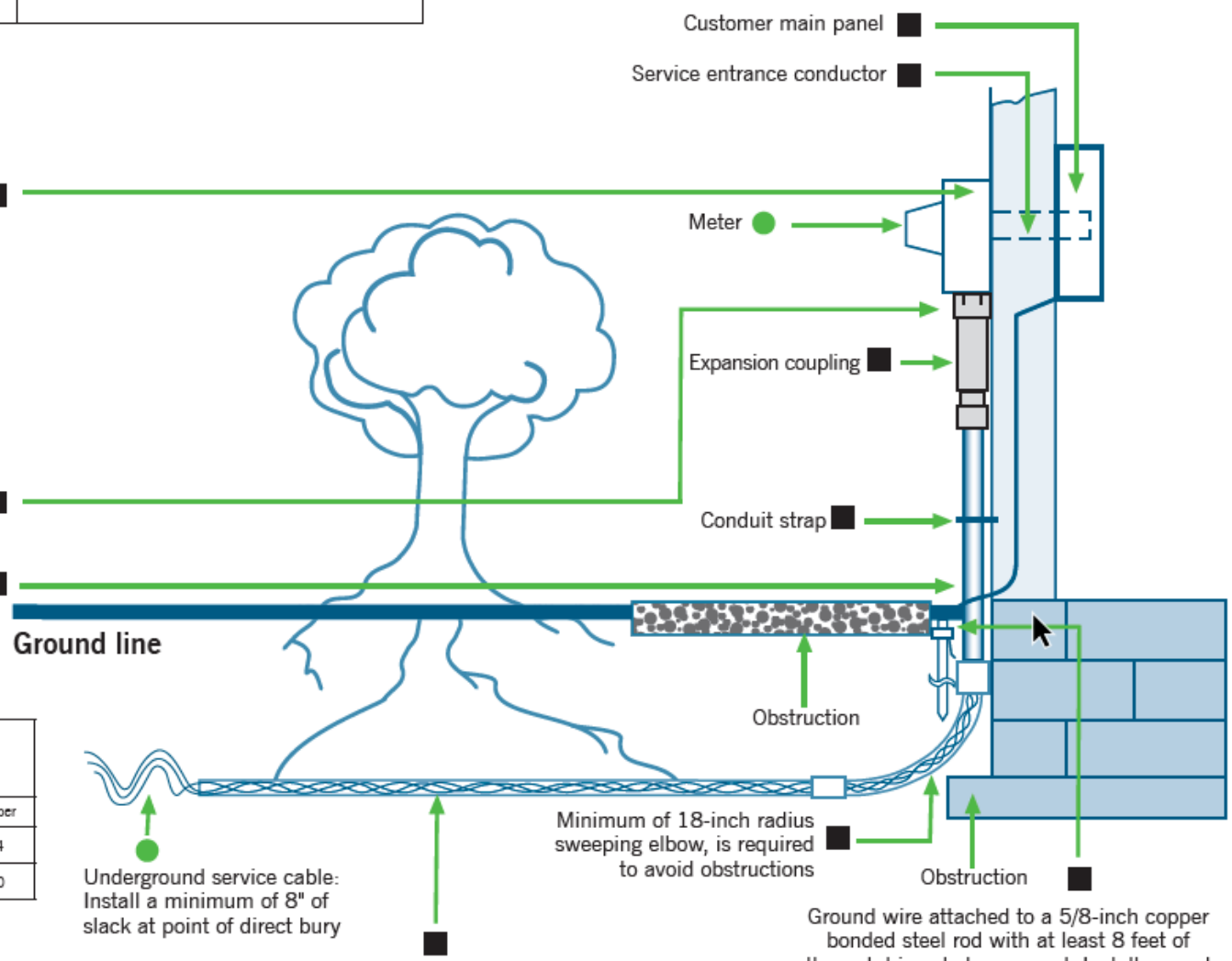
Do not allow pavement or concrete to come in direct contact with the conduit. This will prevent damage to the conduit due to freezing and thawing.

Duke Energy will backfill and mound trench route.

Fittings to connect conduit to meter base.

Please notify Duke Energy of any driveways, sidewalks, other paved areas, trees or shrubs.

Schedule 80 plastic, rigid steel or intermediate metallic conduit with a minimum diameter of 2 inches and a maximum diameter of 3 inches, extended a minimum of 18 inches below grade.



Breaker size	Customer wire sizes					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
200 amp	4/0	2/0	2/0	1/0	#2	#4
400 amp**	600 kcmil	500 kcmil	400 kcmil	350 kcmil	3/0	1/0

* Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.
** All 400 amp meter bases must include line side lugs that accommodate 500 kcmil wire.

Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Electrical service installation guide

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure outlines the steps to be completed before your temporary overhead service can be connected.

The illustration inside shows the items you are responsible for supplying and/or installing, as well as those that Duke Energy provides. If you have questions about any of these specifications, or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246**. We'll be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist For Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner, nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

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Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

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DUKE ENERGY®

Temporary overhead service

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Temporary overhead service

Temporary overhead service	Meter base guidelines
Service type – 120/240 volt, single-phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Overhead 100 amp service, 1 meter position	
Residential Overhead/Underground 200 amp service, 1 meter position	

**For a specific list of approved meter bases, visit duke-energy.com and search for approved enclosure list.

A nonrefundable charge for temporary service will be required. The cost of a standard overhead temporary service is $200 if the service is 100 feet or less.

20-foot pole with a top diameter of at least 5 inches. Contact Duke Energy to determine location of pole.

Service entrance (SE) conductors must extend 3 feet out of weatherhead.

Riser – Service entrance conductors can be either service or conductors in conduit.

Breaker size	Customer wire sizes – typical Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4

*Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.

**Meter base – Install meter base with the center 5 feet 6 inches above the ground.

Weatherproof fused disconnecting device

Weatherproof grounding type receptacles with ground fault circuit interrupter protection

Minimum pole depth of 5 feet. If depth cannot be attained, guying or bracing may be required.

Final grade

Weatherhead

Duke Energy service conductors

Wire attachment hardware

Connectors

Some conductor span lengths may require the pole to be guyed. Contact your local Duke Energy at 800.774.0246 for more information.

Meter

Minimum attachment height must be 12 feet above the ground. Additional height may be necessary if conductors cross streets, roads, alleys, driveways or parking lots.

Ground wire attached to a 5/8-inch copper bonded steel rod with at least 8 feet of the rod driven below ground.

Duke Energy shall approve the location of all meters or meter structures. We also maintain exclusive rights to secure access to the meter and socket.

Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Electrical service installation guide

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure outlines the steps to be completed before your temporary underground service can be connected.

The illustration inside shows the items you are responsible for supplying and/or installing, as well as those that Duke Energy provides. If you have questions about any of these specifications, or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246**. We'll be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist for Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner, nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

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All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

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DUKE ENERGY®

Temporary underground service

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Temporary underground service

Temporary underground service	Meter base guidelines
Service type – 120/240 volt, single-phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Underground 100 amp service, 1 meter position	
Residential Overhead/Underground 200 amp service, 1 meter position	

**For a specific list of approved meter bases, visit duke-energy.com and search for approved enclosure list.

A nonrefundable charge for temporary service will be required. The cost of a standard underground temporary service is $120.

Duke Energy shall approve the location of all meters or meter structures. We also maintain exclusive rights to secure access to the meter and socket.

Any materials not identified in the diagram (such as conduit straps, nipples and locknuts) are your responsibility to supply and install.

Please call Duke Energy to determine the location for your pole. One typical location is shown here. The pole needs to be located no more than 5 feet from the electrical source.

Typical electrical sources are pad-mounted transformers (as shown), above-ground pedestals and ground-level handholes.

Duke Energy will dig the trench, install the cable in the trench and make all connections to the electrical source.

4-by-4-inch dimensional support or pole at least 8 feet in length

Weatherproof grounding type receptacles with ground fault circuit interrupter protection

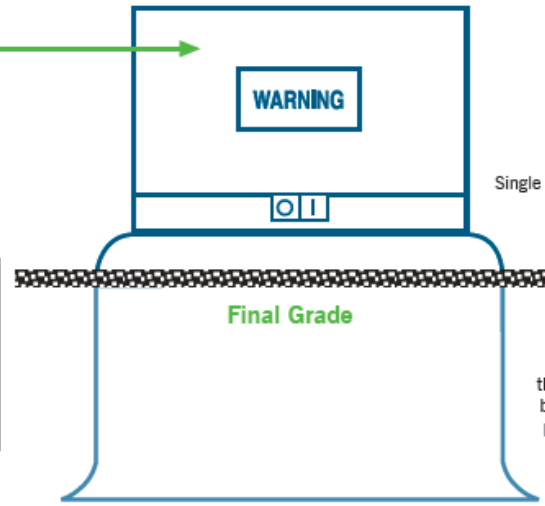
Weatherproof fused disconnecting device

Meter

**Meter base – Install meter base with the center 5 feet 6 inches above the ground.

Schedule 80 plastic, rigid steel or intermediate metallic conduit, with a minimum diameter of 1 1/2 inches, extended a minimum of 18 inches below ground

Single conductor or multiconductor underground service entrance cable (USE)



The length of the service cable left above the ground should be equal to the distance between the pole and the electrical source plus 10 feet. Measure and cut this length, and then coil it at the pole.

Depth of pole must be at least 2 feet 6 inches.

Ground wire attached to a 5/8-inch copper bonded steel rod with at least 8 feet of the rod driven below ground.

Breaker size	**Customer wire sizes** – typical					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4

*Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.

Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

All equipment must be in good condition and installed to meet National Electrical Code requirements.

In Indiana, "call before you dig" 800.382.5544 or 811. Indiana811.org

Electrical service installation guide

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure shows the details of meter base wiring for both overhead and underground single-phase, 120/240 volt installations. The maximum service size for these installations is 200 amperes.

The illustration inside shows the items you are responsible for supplying and/or installing, as well as those that Duke Energy provides. If you have questions about any of these specifications, or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246**. We'll be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist For Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

Issuance of this brochure does not release the customer from responsibility to install, operate and maintain facilities in an approved and safe manner, nor does Duke Energy assume any duty to inspect such facilities or to otherwise determine their adequacy or condition.

Duke Energy may revise, without notice, the requirements outlined in this brochure. The customer is obligated to maintain their facilities in accordance with all applicable revised Duke Energy requirements.

All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

800.774.0246 duke-energy.com

DUKE ENERGY®

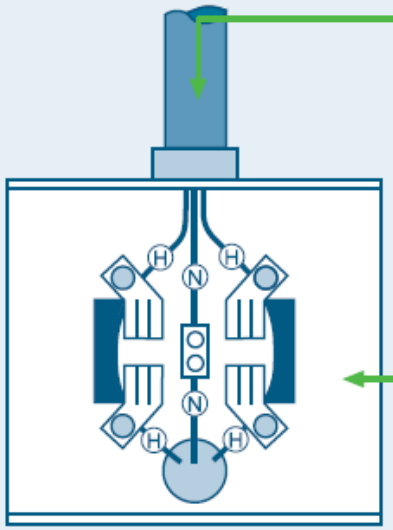
Single-phase meter base wiring

DUKE ENERGY®

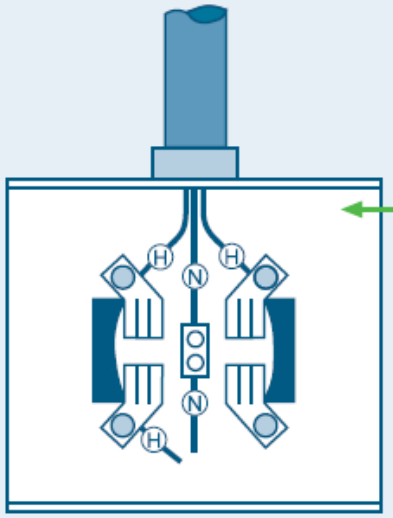
BUILDING A **SMARTER** ENERGY FUTURE®

Single-phase meter base wiring

Overhead service – 3 wire 120/240 volt



Overhead service – 3 wire 120/240 volt – 120 volts to customer



Ⓗ Hot wires
Ⓝ Neutral wires
■ Items you supply and install
● Items Duke Energy supplies and installs

Breaker size	Customer wire sizes – typical					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4

*Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.

■ Conductors in conduit or service entrance cable to weatherhead – Size all customer service entrance conductors to rated ampacity of the main breaker or the fused disconnect.

■ Meter base – This is for installation of a single set of service entrance conductors. For other applications, please contact Duke Energy. Install meter base with the center 5 feet 6 inches above the ground.

Duke Energy requires the customer to use MEG approved meter bases. For a specific list of approved meter bases, please visit **duke-energy.com** and search approved enclosure list.

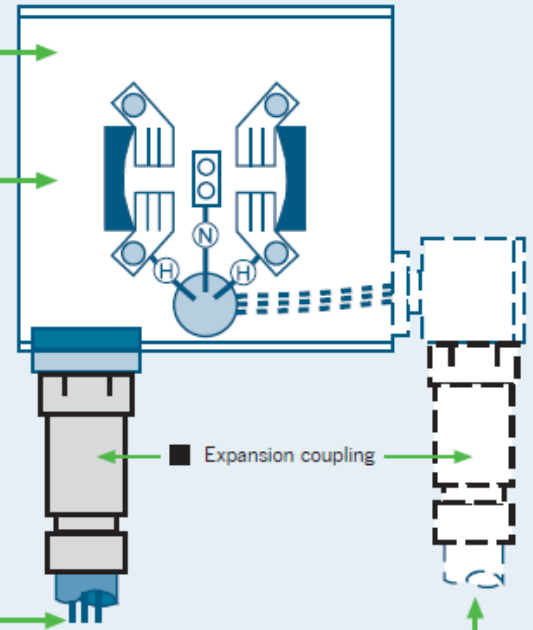
■ Underground meter base must be minimum 200 amp.

■ The ground wire from your main panel to the ground rod must be continuous. Duke Energy recommends that the ground wire not be routed through the meter base. If it is routed through the meter base, however, please be sure that:

A. the ground wire is not connected to the meter base, and

B. the ground wire is installed in a conduit from the meter base to ground in accordance with National Electrical Code requirements. For more information, please refer to NEC Article 250-92.

Underground service – 3 wire 120/240 volt



● Duke Energy service conductors

■ Alternate route for service entrance conductors

All equipment must be in good condition and installed to meet National Electrical Code requirements.

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Electrical service installation guide

Duke Energy looks forward to providing you with reliable and efficient electrical service. This brochure shows the details of a residential installation of parallel main panels from a single-meter base. The maximum service size for this installation is 400 amperes.

The illustration inside shows the items you are responsible for supplying and/or installing, as well as those that Duke Energy provides. If you have questions about any of these specifications, or if your installation differs from the one shown here, please contact Duke Energy at **800.774.0246**. We'll be happy to explain these requirements to you or suggest other sources of help.

To schedule installation of electrical service, please refer to our Checklist for Service Installation. If you do not have a copy of this checklist, please ask for one when you call. We look forward to serving you!

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Duke Energy may revise, without notice, the requirements outlined in this brochure. The customer is obligated to maintain their facilities in accordance with all applicable revised Duke Energy requirements.

All wiring installations must meet the requirements of the National Electrical Code, the National Electrical Safety Code, local codes and ordinances, and inspection authorities, as well as the terms and conditions of electric service of Duke Energy as approved by the Indiana Utility Regulatory Commission.

Equipment and wiring must not present a hazard to Duke Energy personnel, the customer or the general public.

Use of electric energy must not cause unreasonable voltage variations on the Duke Energy lines or disturbances to the service of other customers.

The decisions of local inspection authorities will override the information in this brochure concerning customer equipment. This does not include the location of the meter base.

Ownership of facilities shall remain with the party that supplied the facilities regardless of the party responsible for installation, except as otherwise agreed upon and indicated in writing and on file with Duke Energy. Maintenance of such facilities shall be the responsibility of the owner.

800.774.0246 duke-energy.com

DUKE ENERGY®

Parallel main panels from a single-meter base

DUKE ENERGY®

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Parallel main panels from a single-meter base

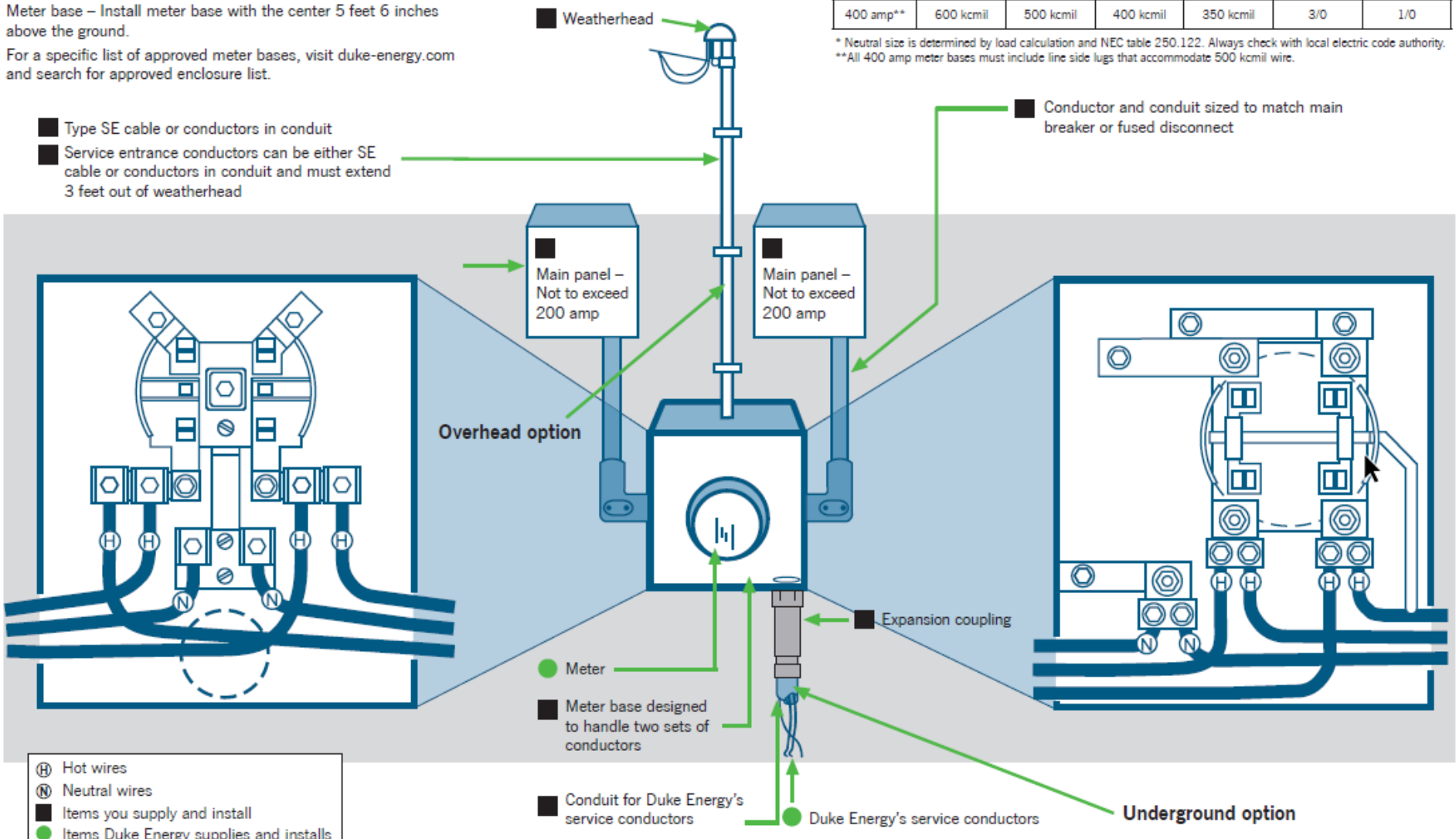
Parallel main panels from a single-meter base	Meter base guidelines
Service type – 120/240 volt, single phase 3-wire	Duke Energy requires the customer to use MEG approved meter bases. Please visit **duke-energy.com** and search approved enclosure list.
Residential Overhead 200 amp service, 1 meter position	
Residential Overhead 400 amp service, 1 meter position	
Residential Underground 400 amp service, 1 meter position	

Breaker size	Customer wire sizes – typical					
	Ⓗ Minimum line conductor		Ⓝ Neutral conductor*		Ground wire	
	Alum.	Copper	Alum.	Copper	Alum.	Copper
100 amp	#2	#4	#4	#4	#6	#4
200 amp	4/0	2/0	2/0	1/0	#2	#4
400 amp**	600 kcmil	500 kcmil	400 kcmil	350 kcmil	3/0	1/0

* Neutral size is determined by load calculation and NEC table 250.122. Always check with local electric code authority.
**All 400 amp meter bases must include line side lugs that accommodate 500 kcmil wire.

Meter base – Install meter base with the center 5 feet 6 inches above the ground.

For a specific list of approved meter bases, visit duke-energy.com and search for approved enclosure list.



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