



Big Bend Electric Cooperative

Service and Meter Requirements

Effective February 2013

PO Box 348
Ritzville, WA 99169

(509) 659 – 1700
(866) 844 – 2363
FAX (509) 659 – 1404

www.bbec.org Services >> Service Requests >> Meter Requirements

Big Bend Electric Cooperative

BIG BEND ELECTRIC COOPERATIVE RESERVES THE RIGHT TO REFUSE SERVICE TO ANYONE NOT FOLLOWING THESE SPECIFICATIONS AS SET FORTH.

Big Bend Electric Cooperative, Inc. of Ritzville, Washington, makes no warranty, expressed or implied, that any wiring or electric equipment located beyond the point where Big Bend Electric Cooperative, Inc. connects its wiring to a member's building, structure, or facility, is adequate, safe, fit for the purpose intended, or that it conforms to any legal code or building code requirements. Nothing herein or in the Big Bend Electric Cooperative, Inc. service specifications or in any other documents shall be construed as undertaking or imposing an obligation upon the Big Bend Electric Cooperative, Inc. to inspect or otherwise insure that a member's wiring, electrical equipment, or leased appliances are adequate, safe, or fit for the purpose intended. No employee or representative of Big Bend Electric Cooperative, Inc. other than the Board of Directors has the authority to alter or to otherwise change the fore-going.

Electric service will be used only for the purpose specified in the service application agreement or rate schedule. Electric service will not be re-metered, resold, or shared by others. Members will not extend their electrical facilities outside their premises for service to other members or premises.

Phone Numbers

Big Bend Electric Cooperative 509 - 659 - 1700
Toll-free..... 866 - 844 - 2363

Department of Labor and Industries, L & I Electrical Inspection –

<http://www.lni.wa.gov/tradescicensing/electrical/>

Kennewick –

4310 W 24th Ave..... 509 - 735 - 0100

Fax..... 509 - 735 - 0120

Toll-free..... 800 - 547 - 9411

24-hour Inspection Request 509 - 735 - 0148

Moses Lake –

3001 W. Broadway..... 509 - 764 - 6900

Fax 509 - 764 - 6923

Toll-free..... 800 - 547 - 2285

24-hour Inspection Request 509 - 764 - 6966

One Call – Call Before You Dig

The Member will mark the area where digging will occur in white paint to identify the locations for utility locators.

Utilities Underground Location Center (Call Before You Dig)..... 1-800-424-5555

OR www.callbeforeyoudig.org OR 811

To get a locate, call the (UULC) ("Call Before You Dig") **2 full working days** prior to excavation. At no charge to you, utilities will mark where their facilities are located on your property. It's required by law. By failing to call for a locate, you could be held liable for any damages you incur to the utility facilities.

The color markings are designated to identify the following Utilities:

Red..... Electric

Green Sewer

Yellow..... Gas/Oil

Purple..... Reclaimed Water

Orange ... Telephone/Cable TV

Pink..... Survey

Blue Water

White..... Proposed Excavation, Area to be located

Washington State requires that **any digging within 24 inches** on either side of the location markings be done by hand.

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Drawings

MT-C-O	General Information, Clearances, Overhead Secondary
MT-C-S	General Information, Clearances, Surface Equipment
MT-C-T	General Information, Clearances, Trench
MT-P-B	General Information, Primary Equipment, Traffic Bollards
MT-P-T	General Information, Primary, Trench
MT-S-T	General Information, Secondary, Trench
MT1-B	Single Phase, Self Contained Metering, Building
MT1-N	Single Phase, Self Contained Metering, Network
MT1-P	Single Phase, Self Contained Metering, Pole
MT1-R	Single Phase, Self Contained Metering, Remote
MT1-T	Single Phase, Self Contained Metering, Temporary
MT1-CT-B	Single Phase, Current Transformer (CT) Metering, Building
MT1-CT-P	Single Phase, Current Transformer (CT) Metering, Pole
MT1-CT-R	Single Phase, Current Transformer (CT) Metering, Remote
MT3-B	Three Phase, Self Contained Metering, Building
MT3-P	Three Phase, Self Contained Metering, Pole
MT3-R	Three Phase, Self Contained Metering, Remote
MT3-CT-B	Three Phase, Current Transformer (CT) Metering, Building
MT3-CT-P	Three Phase, Current Transformer (CT) Metering, Pole
MT3-CT-PL	Three Phase, Current Transformer (CT) Metering, Platform
MT3-CT-R	Three Phase, Current Transformer (CT) Metering, Remote
MT3-CT-S1	Three Phase, Current Transformer (CT) Metering, Switchgear with Meter
MT3-CT-S2	Three Phase, Current Transformer (CT) Metering, Pad Mounted with Meter Base

1 – GENERAL

Big Bend Electric Cooperative (Cooperative) will make every reasonable effort to provide safe, reliable, and adequate electric service to best meet your requirements. **To best accomplish this objective, the Cooperative should be contacted well in advance of your desired service connection date.** Available service voltage, phase, etc. varies at different locations.

The information contained in this handbook refers primarily to service requirements for lighting and power installations at the usual secondary distribution voltages. Those voltages are listed in 2 – Services. Service requirements for an installation requiring higher distribution voltages are subject to negotiations between member and the Cooperative.

The specifications and requirements contained in this handbook are for the purpose of safeguarding members and the employees, and providing adequate service to all members. Strict adherence to this handbook will insure prompt service and connections; and allows the Cooperative to standardize its equipment, thus affording members with the best possible service at the lowest possible cost.

All services provided by the Cooperative are subject to the Cooperative's bylaws, policies, rate tariffs, and member agreements. This handbook does not supersede any of those documents. This handbook replaces all other standards previously issued and is enforced in all areas served by the Cooperative.

Scope

1. This handbook covers the Cooperative requirements and responsibilities and the member responsibilities for member service installations.
2. Nothing in this handbook shall be so interpreted as to conflict with the laws and regulations of the State of Washington or other regulatory bodies having jurisdiction.
3. **All references to the member will include the member, member's agent or contractor.**
4. Non-conforming services will not be energized, or, if energized, will be subject to disconnection.
5. Existing non-conforming services will be dealt with on a case-by-case basis.

Cooperative Responsibilities

1. The Cooperative's Engineer will provide the member with information and interpretations of the Service & Metering Requirements related to the member's specific installation.
2. The Cooperative will require installations to conform to applicable laws and regulations, including the National Electric Code.
3. The Cooperative will require all installations to be inspected and approved by the Washington State L & I Electrical Inspector prior to energization.

Member Responsibilities

1. **If the member is not knowledgeable in electrical work, an electrical contractor should install equipment.**
2. The member will contact the Cooperative's Engineer before beginning any construction of, modification of, or addition to an electric service. The member will be responsible for any changes required to work performed before such consultation.
3. The member will not open any Cooperative seals or locks, or in any way interfere with or tamper with a Cooperative installation.
4. The member will not make any connection to the Cooperative's system.
5. The member will contact the L & I Electrical Inspector to determine if a main breaker is required as part of the metering equipment.
6. Prior to the Cooperative energizing the service, the member will call the office stating they are ready for connection **and** the L & I Electrical Inspector has notified the Cooperative that the installation has been approved. The scheduling of the inspection is between the member and the L & I Inspector.

Right-of-Way and Permits

Cooperative Responsibilities

1. The Cooperative will construct, own, operate and maintain lines along public streets, roads, highways and public lands that the Cooperative has the legal right to occupy or on private property across which right-of-way, satisfactory to the Cooperative, may be obtained.
2. The Cooperative will provide the forms required to grant necessary easements.
3. **The Cooperative will obtain the required permits/licenses from public agencies or entities (DOT, USBR, Irrigation Districts, BLM, DNR, Railroads, Counties, Cities, etc.) and coordinate any professional land survey(s), if required, for these permits.**

Member Responsibilities

1. The member is responsible to obtain signatures from property owners for all required easements using Cooperative documents. These documents provide suitable right-of-way for the construction and maintenance of Cooperative facilities. Any expenses incurred are the member's responsibility.
2. In the event there is any challenge to the Cooperative's right to install facilities on land owned by others, it will be the obligation of the applicant to resolve such challenge to the Cooperative's satisfaction before the Cooperative will have any obligation to make or complete the line extension.
3. The member will provide and maintain safe and unobstructed access, as determined by the Cooperative, to all Cooperative facilities for construction, operation and future maintenance.
4. **The member will pay for any or all permits/licenses, including but not limited to, those listed below, and other permits/license as may be required along with any required professional surveys.**
 - a. Washington State Department of Transportation (WSDOT) – Permits are required if the Cooperative's wires cross or parallel a state highway within their right-of-way. The fee for this permit ranges in cost from \$150 to \$750. A minimum of one to three months is required.
 - b. Avista Utilities – Permits may be required when wires cross under or over Avista lines. A minimum of two weeks' notice is required.
 - c. Bonneville Power Administration (BPA) – Permits are required if the Cooperative's primary or secondary wires cross under a BPA power line or are located in the BPA easement area. A minimum of three months is required.
 - d. United States Bureau of Reclamation (USBR) – Licenses are required if the Cooperative's primary or secondary wires cross USBR property. The USBR charges \$200 and a percentage of Fair Market Value for this license. A minimum of six months is required.
 - e. Department of Natural Resources (DNR) – Easements are required if the Cooperative's primary or secondary wires cross DNR property. To obtain this permit a professional survey is required. DNR charges for utility easements vary and are based upon RCW 79.36.530. Upon completion of the survey, the survey and application fee will be submitted to DNR for processing and approval. A minimum of six months is required. DNR tenants will need to contact the Cooperative for requirements.
 - f. Bureau of Land Management (BLM) – Easements are required if the Cooperative's primary or secondary wires cross BLM property. An application and fee must be submitted to BLM. The fee ranges from \$175 to \$1,125. A minimum of three months is required.
 - g. Railroad – Permits are required if the Cooperative's primary or secondary wires cross over or under a railroad track. The cost for a permit from Burlington Northern Santa Fe Railroad is \$3,000 and Union Pacific Railroad is \$2,000. A minimum of six weeks is required.
 - h. County Permits may be required to cross and work in County right-of-way. All County permits are a minimum of two weeks to obtain.
 - i. ECBID and SCBID permits are required to cross and work in District right-of-way. Permits may take up to six weeks to obtain.

*** All fees are subject to change and fees quoted are minimum amounts.**

2 – SERVICES

The Cooperative's Engineering department will develop a design to meet the member's needs and that of the Cooperative. We have the best results when the requesting party or representative meets at the job site to review the request. The Engineer will develop a design and quote a cost following the guidelines below. The Engineer will **not** be able to give an accurate cost while meeting on site.

- ❖ The Cooperative will determine the length, depth, point of delivery, location, phases, primary voltage, capacity and cost of the line extension. The line extension will be compatible with present electrical distribution facilities.
- ❖ The line extension design will be designed and constructed in accordance to the Cooperative's minimum standards.
- ❖ Members must provide the Cooperative with final property specifications as required and approved by the appropriate government authorities. These specifications may include, but are not limited to, recorded plat maps, utility easements, final construction grades and installed property corner pins.
- ❖ Additional costs will be incurred for unusual labor and/or materials which are requested by the member but which are not necessary to construct the line extension based on the Cooperative's minimum design, construction and operating practices. All Costs in Aid of Construction (C.I.A.C.) must be paid in full before work begins. Additional costs may include, but are not limited to, the following:
 - a. Underground facilities in overhead areas;
 - b. Facilities longer, deeper or larger than deemed appropriate by the Cooperative;
 - c. Facilities to provide three-phase service where single-phase is adequate;
 - d. Relocation of existing facilities; and/or
 - e. Any unusual condition not typically encountered during normal construction. This includes, but is not limited to, frost, weather, rock, landscape replacement, boring charges and equipment.

Available Service

1. The Cooperative offers service at:
 - ❖ Single-phase 120/240 volts
 - ❖ Single-phase 120/208 volts (network)
 - ❖ Single-phase 240/480 volts (Overhead Transformer Only)
 - ❖ Three-phase 120/208 volts
 - ❖ Three-phase 120/240 volts (Overhead Transformers Only)
 - ❖ Three-phase 240/480 volts (Overhead Transformers Only) – New General Service Accounts only, Effective 2015
 - ❖ Three-phase 277/480 volts (Padmounted Transformer only) – Overhead coming in 2013
2. All three-phase services will be 4-wire connections.
3. In accordance with Cooperative rate schedules, service may be at primary voltages.

Cooperative Responsibilities

1. The Cooperative's Engineer will determine the "point of service" where Cooperative facilities will connect to member's facilities.
2. The Cooperative will furnish, install and maintain transformers, secondary conductors, and meters to provide electrical energy to the "point of service".
3. Prior to installation, the Cooperative must approve the meter location and type.
4. The Cooperative will make any and all connections of member's facilities to the Cooperative's system.
5. The Cooperative reserves the right to refuse service or to disconnect/terminate service whenever the member's wiring, equipment, or use of service does not conform to lawful codes and regulations, or to the rules, terms, and conditions stated herein.

Member Responsibilities

1. The member will complete a service application complete with the expected electrical load. **If the electrical load changes**, the member will provide the Cooperative with the new information in writing as soon as possible. **Service applications will only be valid for 90 days without forward progress on the project.** After the 90 days, a new Service application will need to be submitted.
2. The member will furnish, install and maintain all facilities beyond the "point of service".
3. The member will use reasonable care in designing electric wiring and circuits so that the loads on the individual phases, legs, and circuits of the Cooperative's service conductors are properly balanced at all times.
4. The member will be solely responsible for the electrical and mechanical protection of wiring and accessories owned and operated by the member including protection against damage caused by reversal of rotation (phase reversal) on all rotating equipment.
5. The member will install safety and protective equipment in accordance with applicable codes and regulations.
6. The member will be responsible for repair of any damaged or deteriorated member furnished facilities (service mast and conductors, point of attachment, meter socket, etc.). **Any repaired or modified facilities must be inspected and approved by the L & I Electrical Inspector before being re-energized.**
7. In the event a member desires to substantially add or to increase the size of his electrical equipment, it will be the member's responsibility to notify the Cooperative in writing sufficiently in advance so that the Cooperative's facilities may be modified to accommodate the increased load. The Cooperative has forms available for this purpose. If the member fails to so notify the Cooperative, the member will be held responsible for any damage to the meter or any other equipment of the Cooperative caused by such increased load.
8. Member-owned metering equipment, switching devices, conduits and conductors will be installed per the Cooperative requirements shown here-in.
9. Member-owned luminaries and basketball hoops, satellite dishes, antennas, etc., will not be installed on the Cooperative's poles.

Temporary Services

The Cooperative will provide temporary service, for construction sites and similar purposes, for a maximum of one year. Meter socket must be L&I approved. See Drawing MT1-T.

Remote Meter Identification

Meters not installed on the structure which it is serving will be identified as described in 5 – Metering, Multiple Occupancy: Identification.

3 – OVERHEAD SERVICE

General

Overhead services must meet all vertical and horizontal clearance requirements of the NESC, NEC, WAC 296-46B, and any other applicable standards (DOT, County, City, etc.). Some typical secondary voltage clearance requirements are illustrated on Drawing MT-C-O.

Cooperative Responsibilities

1. The Cooperative's Engineer will determine the location of the overhead service conductors.
2. The Cooperative's Engineer will determine the requirements for, and the location of, any necessary poles, guy wires and anchors.
3. The Cooperative will furnish, install and maintain the service conductors to the "point of service".
4. The Cooperative will make any and all connections of member facilities to the Cooperative's electrical system.

Member Responsibilities

1. The member will furnish and maintain a point of attachment to member's premises (or meter pole) that provides the necessary clearances.
2. The member will furnish, install and maintain the necessary service equipment (mast and conductors, weatherhead, meter socket, guy wires and bracing, etc.).
3. Construction of service masts will conform to NEC, WAC 296-46B and Drawings MT1-B, MT1-P, MT1-CT-B, MT1-CT-P, MT3-B, MT3-P, MT3-CT-B, MT3-CT-P or MT3-CT-PL and be of the specified length.
4. All conduits will be attached to the pole on one set of stand-off brackets in the area indicated on the applicable drawing.
5. Service masts will support only power conductors. Communication wire is not permitted.
6. The Cooperative will furnish and maintain meter poles.
7. The Cooperative prefers that the service drop is in clear space. However, if the service drop will pass through trees or brush, the member must clear and maintain a three-foot path to allow service personnel to access the line, and allow lines to hang without contacting trees or limbs.
8. Metering requirements are listed in 5 – Meters.

4 – UNDERGROUND SERVICE

General

1. Prior to any construction of underground service facilities, the member will contact the Cooperative's Engineer for specifications and approval.
2. The member will be responsible for any changes necessary to work begun without Cooperative Engineering approval.

Cooperative Responsibilities

1. The Cooperative's Engineer will determine the location of underground facilities.
2. The Cooperative's Engineer will determine the need for easements and access.

Member Responsibilities

1. The member will furnish all required secondary trenches and conduit to Cooperative specifications. See Drawings MT-C-T and MT-S-T.
2. The member **may** furnish all required primary trenches and conduit to Cooperative specifications. See Drawings MT-C-T and MT-P-T.
3. The member will furnish, install and maintain all required service equipment (meter socket, disconnect, pedestal, etc.). See Drawing MT1-B, MT1-N, MT1-R, MT1-CT-B, MT1-CT-R, MT3-B, MT3-R, MT3-CT-B, MT3-CT-R, MT3-CT-S1 or MT3-CT-S2.
4. Metering requirements are listed in 5 – Meters.

Trenching

General

1. The member will contact the One-Call Locating service (1-800-424-5555 or 811) at least 48 hours prior to any excavation. This is in accordance with RCW 19.122.
2. All excavation within 24 inches of any locate marking will be done by hand.
3. A Cooperative representative will inspect all trenches **before** backfill. Trenches covered before inspection will not be used for electrical service.
4. Joint use of trenches for other utilities such as telephone, cable TV, other electrical conductors and water lines is generally permitted. The Cooperative's Engineer will be consulted prior to such joint use to insure conformance to Cooperative requirements.

Depth

1. Trenches on the Cooperative side of the "point of service" will be deep enough to provide a minimum of 36" of cover for the conduit. This applies to both primary and secondary conduits. See Drawings MT-C-T, MT-P-T and MT-S-T.
2. In rocky soil conditions, where bedding is required, the trench will be an additional 6" deeper to allow placement of proper bedding under the conduit.

Bedding

1. Backfill material will be a maximum 1" minus for a minimum of 6" above and below the conduit. The backfill material will contain no sharp or foreign objects. Bedding sand would be the preferred material.
2. If the native backfill does not meet these requirements, member will be responsible for furnishing and installing appropriate backfill for a minimum of 6" above and below the conduit.

Conduit

1. "Conduit" means listed, labeled, UL-approved electrical conduit, typically Schedule 40 or Schedule 80 PVC. Conduit is grey in color. Water pipe, sewer pipe and other round stock is not acceptable for electrical use.
2. "Sweep" means a large-radius conduit bend (as noted on drawing), typically either 90 degrees or 45 degrees.
3. All secondary conductors will be in conduit.
4. In general, primary (high-voltage) conductors will be installed in conduit. The Cooperative's Engineer may approve the use of CIC (Cable in Conduit) or other installations in specific cases.
5. The Cooperative's Engineer will determine the size and number of conduits to be placed.
6. A conduit run should contain no more than 270 degrees of total bend, including at transformers and metering equipment. Any conduit run with more than 270 degrees of total bend must have prior Engineering approval.

Transformers, Equipment, Vaults

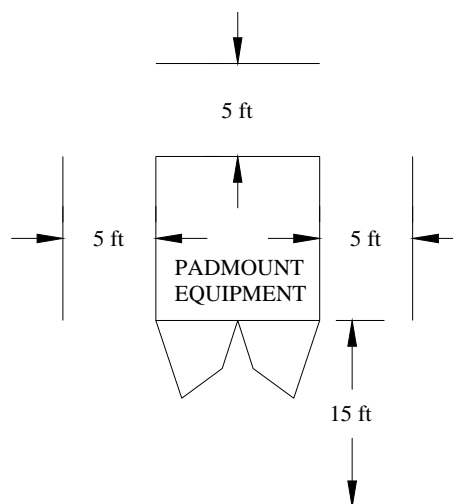
General

1. The Cooperative's Engineer will determine the need for, and the location of, all transformers, vaults, and other primary-voltage equipment necessary to furnish underground service.
3. The Cooperative will furnish, install and maintain all necessary transformers, vaults and other equipment with the exception that members may install vaults. See Drawings MT-P-T and MT-S-T.
4. Where necessary to protect above-ground equipment, the member will furnish, install and maintain bollards. See Drawing MT-P-B.

Transformers

1. The member must maintain a clear working space around the transformer free from vegetation, landscaping, structures of any sort, or anything that would restrict Cooperative access for maintenance or repair. This is shown in the sketch below.

CLEARANCE ENVELOPE:
KEEP SHRUBS, TREES AND STRUCTURES 15' AWAY FROM THE SIDE WITH DOORS AND 5' AWAY FROM OTHER SIDES.
OBSTRUCTIONS WILL BE REMOVED WHEN NECESSARY.



2. The member will insure that nothing is placed within the clear working space that would impede the free flow of cooling air over the transformer.

5 – METERING

General

1. Nothing in this handbook shall be so interpreted as to conflict with the regulations of the State of Washington or other regulatory bodies having jurisdiction.
2. All references to the member will include the member's agent or contractor.

Cooperative Responsibilities

1. The Cooperative's Engineer will provide the member with information and interpretations of these Requirements related to the member's specific installation.
2. The Cooperative will require installations to conform to applicable laws and regulations.
3. The Cooperative will require all installations to be inspected and approved by the State Electrical Inspector prior to energization.

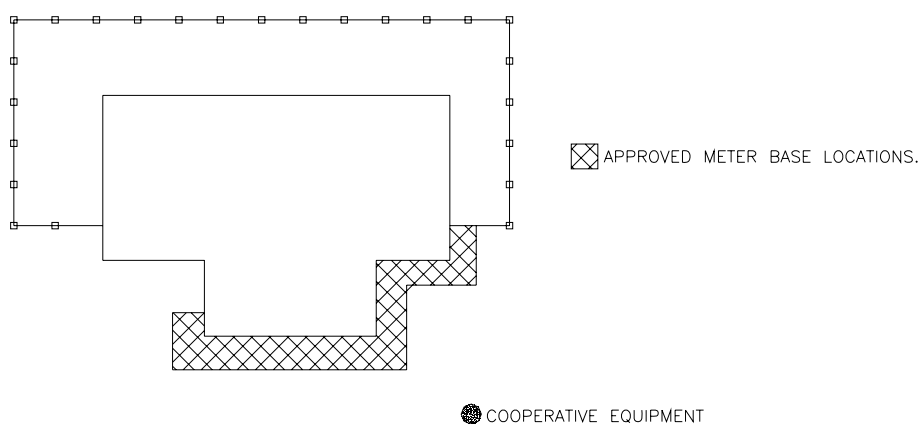
Member Responsibilities

1. The member will contact the Cooperative's Engineer before beginning any construction of, or modification or addition to, an electric service. The member will be responsible for any changes required to work performed before such consultation.
2. The member will provide the Cooperative Engineer with load information on Cooperative forms OR calculations per NEC to allow proper sizing of service equipment.
3. The member will provide and install, in accordance with the following requirements, the necessary equipment for the Cooperative's metering.
4. The member will provide all necessary maintenance and repairs to the metering installation.
5. The member will not break any Cooperative seals or locks, or in any way interfere with or tamper with a Cooperative metering installation.
6. Prior to installation, the Cooperative must approve the meter location and type.
7. The member will not make any connection to the Cooperative's system.

Location and Access

Location

1. Metering must be installed in an acceptable location and approved by the Cooperative's Engineer. An *example* is shown below.



2. If the meter location is unacceptable to the Cooperative's Engineer, it will be relocated at the member's expense to an acceptable location.
3. Metering must be installed on the outside wall of a structure.

4. Metering equipment installed in alleys or other exposed locations will be protected from damage.
5. Metering equipment will not be located in carports, breezeways, porches or other similar locations. In the event that building construction, alteration, or repair, (i.e. construction of a porch or other structure) in the opinion of the Cooperative, makes a meter inaccessible, the member will at member's expense, relocate the meter socket and/or service entrance conductor to an outside location which is accessible to Cooperative personnel.
6. Metering equipment will be surface mounted, or, if recessed, will project at least 1" from the final building finish. Recessed metering equipment will be listed and labeled for recessed installation.

Access

1. The member will provide, as a condition of service, access to Cooperative facilities located on member's premises.
2. The member will provide access, as required by WISHA, "free from recognized hazard". Examples of hazards might include (but are not limited to) animals, traffic, machinery or industrial environments, height, chemicals, vegetation, unstable work surfaces, falling trees or rocks, etc.
3. The member will provide, as required by the National Electrical Code and WAC 296-46B, clear working space in front of the metering equipment, 36" deep, 30" (or the width of the equipment if greater) wide, and 6'8" high. This space will be maintained clear of all other equipment, vegetation, etc.
4. The working surface in front of metering equipment will be reasonably level and graded to drain away from the equipment.
5. Members with security requirements will provide for the installation of a Cooperative lock to allow Cooperative access.

Access Maintenance

1. The member will maintain the required access to and clear working space about Cooperative facilities on member's property.
2. When Cooperative facilities on member's property are not readily accessible, in the opinion of the Cooperative, the member will be responsible for necessary corrections.
3. When, in the opinion of the Cooperative, alterations on the member's property (remodeling, landscaping, etc.) interfere with ready access to Cooperative facilities, member will be responsible for the cost of remedy.
4. When, in the opinion of the Cooperative, pets, livestock, or other animals interfere with ready access to Cooperative facilities, member will be responsible for installation of necessary barriers to remedy the problem. If relocation of Cooperative facilities becomes necessary, member will be responsible for all costs.

Installation

General

1. All installations must conform to the requirements of the National Electric Code, WAC 296-46B, and these Service & Meter Requirements.
2. Equipment to be installed will be listed, labeled, manufactured in accordance with all applicable standards, and suitable for the purpose in which it is utilized.
3. Metering enclosures, switchgear, disconnects and other equipment which allows access to unmetered conductors will be capable of being sealed using the Cooperative's normal seals and locks.
4. All metering connections will be made in sealed enclosures.
5. Equipment will be installed level, plumb and securely fastened to a rigid surface not subject to excessive vibration. Meter sockets must be installed to withstand the forces imposed by installation and removal of meters.
6. Where used to support metering equipment, wood posts, dimensional lumber and plywood will be pressure-treated lumber. Posts will be a minimum 6" x 6" x 8'. Dimensional lumber will be a minimum of 2"x 4", and plywood will be a minimum of ¾". Metal channel may also be used.

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7. Meters will not be covered. The Cooperative may install covers where necessary to prevent vandalism.
8. Meter sockets will not be used as a raceway.
9. Service conduits passing from the outside to the inside of a structure will be sealed in accordance with the NEC 300.7 to prevent condensation in the meter socket.

Height

1. Meter sockets will be installed at a height of 4' to 6' from the center of the meter to finished grade in front of the meter. See the Drawing(s) applicable to your installation.
2. Mobile home pedestals will be installed at a height of 4' to 6' from the center of the meter to finished grade in front of the meter. See Drawing MT1-R.
3. Multiple-occupancy metering equipment will be installed with the lowest meter no lower than 3' from the center of the meter to finished grade, and the highest meter no higher than 7' from the center of the meter to finished grade in front of the meter.
4. Current transformer enclosures will be installed at a height of 6' from the top of the enclosure to finished grade in front of the enclosure.

Single-Phase 400-Ampere and Below, Self-Contained Metering

General

1. The meter socket will be 4-jaw.
2. The meter socket may be ring-type or ringless.
3. Lever bypasses are recommended for non-residential services. Automatic bypasses are not permitted.
4. Locking-jaw meter sockets are permitted but not required.
5. The service conductors will be color coded per the applicable drawing.

Overhead

1. The member will leave a minimum of 36" of service conductor at the weatherhead for connection to Cooperative's wires.
2. The weatherhead will be above the point of attachment of the service drop.

Underground

1. The supply conduit will be installed in the bottom left knockout of the meter socket.
2. Where the service conductor length makes larger conductors necessary, the member will furnish a socket capable of accepting a 3" conduit, and with lugs that will accept 350 MCM aluminum conductors. The Cooperative's Engineer will advise the member of this situation.

Three-Phase 200-Ampere and Below, Self-Contained Metering

General

1. The meter socket will be 7-jaw.
2. The meter socket may be ring-type or ringless.
3. Lever bypasses are required. Automatic bypasses are not permitted.
4. Locking-jaw meter sockets are permitted but not required.
5. Where a service has a high leg (delta connection), the high leg will be connected to the right-hand lugs in the meter socket, and taped orange.

6. For services with motor load, the following chart will be used.

VOLTAGE	HORSEPOWER	TYPE OF SOCKET
240	14 or less	100 amp self-contained
240	15 to 39	200 amp self-contained
240	40 and above	CT
480	45 or less	100 amp self-contained
480	45 to 75 (110*)	200 amp self-contained
480	76 (111*) and above	CT

* Consulting Engineering regarding your installation.

Overhead

1. The member will leave a minimum of 36" of service conductor at the weatherhead for connection.
2. The weatherhead will be above the point of attachment of the service drop.

Underground

1. The supply conduit will be installed in the bottom left knockout of the meter socket.
2. The Cooperative's Engineer will advise the member of the service conductor size and material, if larger than the manufacturer's advertised range, to insure the member provides a socket with appropriate lugs.

Single and Three Phase, Current Transformer (CT) Metering

General

1. Services from 401-800 amperes single-phase and 201-800 amperes three-phase will be metered using current transformers (CTs).
2. CTs will be installed using a member furnished CT mounting bracket in a listed CT enclosure.
3. CTs will be mounted, by the Cooperative, on the pole or in a listed CT enclosure. The Cooperative's Engineer will make the determination of the CT location.
4. The Cooperative will furnish and install the CTs, CT wiring, test switch and meter. The member will be responsible for the cost of the test switch.
5. Equipment location and mounting heights will be per 5 – Metering, Locations and 5 – Metering, Installation sections. This information is also shown on the applicable drawings.
6. See Drawings MT1-CT-B, MT1-CT-P, MT1-CT-R, MT3-CT-B, MT3-CT-P, MT3-CT-PL or MT3-CT-R for details.

CT Enclosure

1. The member will furnish and install a listed CT enclosure.
2. The minimum size will be 24" x 48" x 11" for single phase and 36" x 48" x 11" for three phase. Larger sizes are permitted.
3. Enclosures will have a hinged cover. Piano hinges are not permitted.
4. Cooperative service conduits will enter the enclosure from the top or bottom, grouped at either the left or right side.
5. The member will bond the CT enclosure to the grounded service conductor, per NEC.
6. Member conduits will enter the enclosure through the top, bottom, or top ¼ or bottom ¼ of the back or sides of the enclosure. The middle ½ of the enclosure will have no member conduits.
7. The meter socket conduit may enter the CT enclosure opposite the CTs.

CT Mounting Bracket

1. The member will furnish and install a CT mounting bracket. Lugs come on mounting bracket.
2. The mounting bracket may be either top- or bottom-fed. **The standard will be Cooperative conductors on the top of the mounting bracket.**
3. The member will furnish and connect conductors from the mounting bracket to the main service disconnect(s).
4. The Cooperative will furnish and connect service conductors from the transformer to the mounting bracket.
5. Conductors will **not** be routed through the area of the mounting bracket; conductors will follow the walls of the CT enclosure.

Meter Socket and Conduit for CT Metering

1. The member will furnish and install an approved meter socket.
2. The member will install a 1 ½" metallic conduit between the CT enclosure and the meter socket.
3. This conduit will be continuous from the enclosure to the socket, with no junction boxes, condulets or other fittings allowing access to the conductors.
4. This conduit will have a maximum of 360 degrees of bend.
5. This conduit will have a maximum length of 50 feet. (Contact the Cooperative's Engineer for exceptional circumstances.) Preferred installations are shown in the applicable drawings.
6. Grounding and bonding of this raceway will be per NEC.

CT Metering—Services Over 800 Amperes

1. Services rated over 800 amperes will be metered with current transformers mounted in switchgear, unless an alternative is approved by Engineering.
2. Cooperative requirements are detailed in Drawings MT3-CT-S1 and MT3-CT-S2.
3. The member will furnish and install an approved 13-jaw meter socket.
4. The Cooperative will approve the meter location. Under Special Approval, the switchgear may be installed inside a building. In that case, conduit will extend no more than 15 feet inside the building lines (unfused conductors per NEC and WAC 296-46B). Grounding and bonding of this raceway will be per NEC.

Multiple Occupancy

General

1. Metering equipment for multiple-occupancy installations will be factory-manufactured solid-busbar switchgear. (Field installations of a wireway and multiple individual meter sockets will not be acceptable.)
2. The member will submit manufacturer's drawings or cut sheets to the Cooperative for approval **before** installing the metering equipment.
3. All compartments and disconnects allowing access to unmetered conductors will be capable of being sealed using the Cooperative's standard seal.
4. Meter sockets will be ring-type, to accept locking rings.
5. Lever bypasses are recommended for non-residential services. Automatic bypasses are not permitted.

Single-Phase (120/240 volts)

The socket will be 4-jaw.

Network (120/208 volts)

1. The socket will be 5-jaw, with the 5th jaw in the 9-o'clock position.
2. All load will be balanced between phases within 10%.

Three-Phase

The socket will be 7-jaw.

Identification

1. The member will permanently identify each meter socket. Meters will not be installed nor services energized until identification is complete.
2. Sockets will be identified by address and/or unit number permanently affixed to the entrance door of the unit. Occupant or business name is not sufficient.
3. Satisfactory permanent identification means include engraved plastic or metal tags attached with screws, bolts or rivets. Permanent ink markers, label makers, etc. are not permitted as permanent identification. Adhesives may be used, but screws, bolts or rivets are still required.
4. Engraved lettering will be at least ½" high.
5. If unit identification changes, the member will notify the Cooperative in writing immediately.
6. The Cooperative will record consumption and issue billings according to the member's identification of the units. Proper identification of a unit is the member's responsibility.

Approved Equipment

The following is a list of meter equipment that will comply with the Cooperative's standards. Other manufacture's equivalent equipment is acceptable.

Single Phase - Self-Contained Meter Sockets, 400 Amperes and Below

Locking jaw permitted.

No By-pass.

Lever By-pass.

<u>Milbank</u>		<u>100/125 Amp</u>	<u>200 Amp</u>	<u>320/400 Amp</u>
120/240V, 4-jaw, Meter Only	OH	--	U4517-DL-M4	U1079-R
	UG	--	U4518-O-W	U1129-O-K3L-K2L
	OH/UG	U7490-RL *	U1211-RXL	--
120/240V, 4-jaw, Meter/main Combination **	OH	--	U3574-RL-200	--
	UG	--	U3584-O-200	U4031-O-2/200
	OH/UG	U5168-XTL-100	U5168-XTL-200	U5059-X-2/200

* Add A7551 Closing Cap for underground. ** Call factory if Main Breakers are required.

<u>Cooper B-Line (Circle AW)</u>		<u>100/125 Amp</u>	<u>200 Amp</u>	<u>320/400 Amp</u>
120/240V, 4-jaw, Meter Only	OH	--	204MS68	EL32T45GR1N
	UG	--	U204	EL32T44GRST
	OH/UG	011	EL20L43GR2N	--
120/240V, 4-jaw, Meter/main Combination	OH	--	2M2R	--
	UG	--	U2M2R	ELCB32C24A4AGRST
	OH/UG	U214MTBL *	U224MTBL *	ELCB32C24A5GR1N

* Available in other AIC ratings on request.

Single Phase - CT Metering, 401 to 800 Amperes

Provisions for Cooperative test switch.

<u>Milbank</u>		<u>400 Amp</u>	<u>800 Amp</u>
Enclosure - 24" x 48" x 11"		CT244811-HC	CT244811-HC
CT Mounting Base		K4903	K4729
Meter Base, 600 Vac, 6-jaw	OH/UG	UC3436-XL	UC3436-XL

Notes: 1. Mounting racks are 50 k AIC and have lugs installed on both Line & Load.
2. CT cans are hinged.

<u>Cooper B-Line (Circle AW)</u>		<u>400 Amp</u>	<u>800 Amp</u>
Enclosure - 24" x 48" x 11"		244811 HRTCT	244811 HRTCT
CT Mounting Base		6019HAL	6019HEL
Meter Base, 600 Vac, 6-jaw	OH/UG	12146	12146

Notes: 1. Mounting racks are 50 k AIC and have lugs installed on both Line & Load.
2. CT cans are hinged.

Equivalent equipment is acceptable. Requirements are subject to change without notice. Contact BBEC Engineering at (509) 659 - 1700 or 866-844-2363 with any questions.

Three Phase - Self-Contained Meter Sockets, 200 Amperes and Below

Lever by-pass required. Locking jaw permitted.

Milbank		<u>125 Amp</u>	<u>200 Amp</u>
120/240V, 120/208V, 240/480V, 277/480V, 7-jaw, Meter Only	OH/UG OH	U9320-RXL U1681-RL	U7423-RXL

120/240V, 120/208V, 7-jaw, Meter Combination*	OH/UG	<u>200 Amp</u> U227MTB (10K AIC)**
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240/480V, 277/480V, 7-jaw, Meter Combination*	OH/UG	<u>200 Amp</u> U227MTB-48 (35K AIC)**
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* Call factory if Main Breakers are required. ** Other AIC ratings are available & acceptable.

Cooper B-Line (Circle AW)		<u>125 Amp</u>	<u>200 Amp</u>
120/240V, 120/208V, 240/480V, 277/480V, 7-jaw, Meter Only	OH/UG OH	EC12L71GRST 927	EL20L73GR2N

120/240V, 120/208V, 7-jaw, Meter Combination*	OH/UG	<u>200 Amp</u> U227MTBL (10K AIC) *
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240/480V, 277/480V, 7-jaw, Meter Combination*	OH/UG	<u>200 Amp</u> U227MTBHMS15 (22 k AIC)
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* Available in 42 k AIC on request.

Three Phase - CT Metering, 201 to 800 Amperes

Provisions for Cooperative test switch.

Milbank		<u>400 Amp</u>	<u>800 Amp</u>
Enclosure - 36" x 48" x 11"; 48" x 48" x 14"		CT364811-HC	CT484814-HC
CT Mounting Base		K4904	K4722
Meter Base, 600 Vac, 13-jaw	OH/UG	UC3433-XL	UC3433-XL

Notes: 1. Mounting racks are 50 k AIC and have lugs installed on both Line & Load.
2. CT cans are hinged.

Cooper B-Line (Circle AW)		<u>400 Amp</u>	<u>800 Amp</u>
Enclosure - 36" x 48" x 11"; 48" x 48" x 14"		364811 HRTCT	484814 HRTCT
CT Mounting Base		6067HAL	6067HEEL
Meter Base, 600 Vac, 13-jaw	OH/UG	121413	121413

Notes: 1. Mounting racks are 50 k AIC and have lugs installed on both Line & Load.
2. CT cans are hinged.

Three Phase - CT Metering, over 800 Amperes

Provisions for Cooperative test switch. Options for Specification MT3-CT-S2.

Erickson Electric	<u>1200 - 2000 Amp</u>	<u>1200, 1600 or 2000 Amps</u>
	PMCT-07C (Padmounted)	CT124, CT164, CT204 CT-07A (Wall-mounted)

Equivalent equipment is acceptable. Requirements are subject to change without notice.

Contact BBEC Engineering at (509) 659 - 1700 or 866-844-2363 with any questions.

6 – POWER QUALITY

This section will cover Cooperative requirements that assure suitable power quality, and prevent interference with Cooperative service to other members.

Cooperative Responsibilities

1. Insofar as is practical, as determined by the Cooperative, the Cooperative will endeavor to maintain standard voltages and frequency on its distribution systems, subject to variations within reasonable limits.
2. Upon request, the Cooperative will furnish, in writing, information on the available fault current at the serving transformer under normal operating conditions.

Member Responsibilities

1. The member's equipment will be designed to perform satisfactorily within the standard voltage ranges and frequency provided on the Cooperative's system.
2. The member's system will be rated to withstand the fault current available at the serving transformer.
3. The member will, upon request, provide the Cooperative with information regarding any equipment that might cause interference with service to other members.
4. The member will be responsible for mitigating, at member's expense, any interference to the Cooperative's service to other members caused by member's equipment. Examples of such interference would include, but not be limited to, flicker, harmonic distortion, radio frequency interference, etc.
5. The member will be responsible for providing any power conditioning or protective devices required by their particular equipment (uninterruptible power supplies, filters, power factor correction, harmonic suppression, etc.).
6. Where the member installs equipment/appliances with sensitive electronic components such as computers and other devices containing programmable controllers, it is understood that it is impossible for the Cooperative to provide "computer grade" voltage and power at all times. It will be the responsibility of the member to install, own, operate, and maintain appropriate protection equipment in order to protect such devices from damage including power line noise, voltage fluctuations, power outages, spikes, transient surges or other power deviations.

Motors

Maximum single phase motor load is 10 horsepower. Maximum open-delta (V-phase) motor load is 25 horsepower. Phase converters may be permitted (where 3-phase distribution facilities are not available or not feasible for member to afford) by special arrangement with the Cooperative.

Starting Load

1. The Cooperative's Engineer may require reduced-voltage starting on motors to reduce voltage fluctuations on the Cooperative's system caused by motor starting.
2. Any 100 horsepower or larger motor will be analyzed by the Cooperative's Engineer for motor starting requirements. The Cooperative will notify the member of the motor starting requirements.
3. The member will need to acknowledge receipt of the motor start letter by signing the document and returning it to the Cooperative. **The service will not be energized until the motor start letter is received.**
4. A motor start test performed by Cooperative personnel may also be required. At the time of testing, the Cooperative will verify the size and nameplate rating of the motor. If there are any discrepancies, a delay in energizing the service could occur.

Harmonics

1. The Cooperative has adopted IEEE 519 - 1992 Standard as a guide to mitigate harmonic distortion. Variable Frequency Drive (VFD) motors are a major source of harmonic distortion.

This harmonic distortion causes heating of equipment and system disturbances on the Cooperative's distribution system.

- The member will design the service so that harmonic distortion falls within the IEEE Standard. This may require harmonic filters or various types of motors designed to reduce harmonics. **The service will not be energized until the VFD Approval Form is approved by the Cooperative.**
- If the Cooperative determines that the harmonic distortion is outside the standard, the service will not be energized until satisfactory mitigation has been completed by the member. **Energized services will be subject to disconnection if distortion falls outside the IEEE standards.**

Current Distortion – IEEE Std 519-1992, Table 10-3

Maximum Harmonic Current Distortion in Percent of I_L
Individual Harmonic Order (Odd Harmonics)
(For 6-Pulse Rectifiers)

I_{sc}/I_L	<11	11-15	17-23	23-35	>35	TDD
< 20*	4.0	2.0	1.5	0.6	0.3	5.0
20 - 50	7.0	3.5	2.5	1.0	0.5	8.0
50 - 100	10.0	4.5	4.0	1.5	0.7	12.0
100 - 1000	12.0	5.5	5.0	2.0	1.0	15.0
> 1000	15.0	7.0	6.0	2.5	1.4	20.0

Even harmonics are limited to 25% of the odd harmonic limits above.

Current distortions that result in a dc offset, e.g., half wave converters, are not allowed.

* All power generation equipment is limited to these values of current distortion, regardless of actual I_{sc}/I_L .

These limits are for normal operation, not start-up conditions.

For 12 pulse rectifiers, increase above harmonic limits by 1.4142. For 18 pulse rectifiers, increase above harmonic limits by 1.732.

WHERE

PCC = Point of Common Coupling

I_{sc} = Maximum short-circuit current at PCC. Available by request from the Cooperative.

I_L = Maximum demand load current (fundamental frequency component) at PCC. It is recommended that the load current, I_L , be calculated as the average current of the maximum demand for the preceding 12 months.

TDD = Total Demand Distortion is Harmonic Current in percent of maximum demand load current (15 or 30 minute demand).

Motor Protection

It will be the member's responsibility to provide all necessary protective devices for all motors to protect the motor from overload, under-voltage, over-voltage, phase loss or reversal, etc.

Power Factor Correction

The Cooperative recommends that the member install power factor correction equipment for three-phase motors.

The Cooperative reserves the right to require the member to install, at the member's expense, such power factor corrective and/or load limiting equipment as is necessary to limit load and voltage fluctuations so that it is not necessary for the Cooperative to supply excess capacity and facilities. Where the member installs such power factor corrective equipment, the Cooperative reserves the right to require the member to install such controls as are necessary, in the Cooperative's opinion, to prevent voltage or other disturbances on the Cooperative's system that would be detrimental to service furnished to other members.

7 – Emergency and Standby Generators

Member Responsibilities

1. Permanently-installed emergency or standby generators will be connected to the Cooperative's system and the member's wiring system by a permanently-installed transfer switch installed in accordance with the requirements of the NEC and WAC 296-46B.
2. All transfer switch installations must meet all applicable codes and be approved by the L & I Electrical Inspector.
3. The transfer switch will disconnect all Cooperative conductors, including the neutral wire, from the member's system prior to connecting the generator to the conductors supplying the load.
4. Portable generators will not be connected to a member's permanent wiring system at any time, unless the interconnection is also made with a permanently installed transfer switch

8 – Net Metering (Under 100 kW)

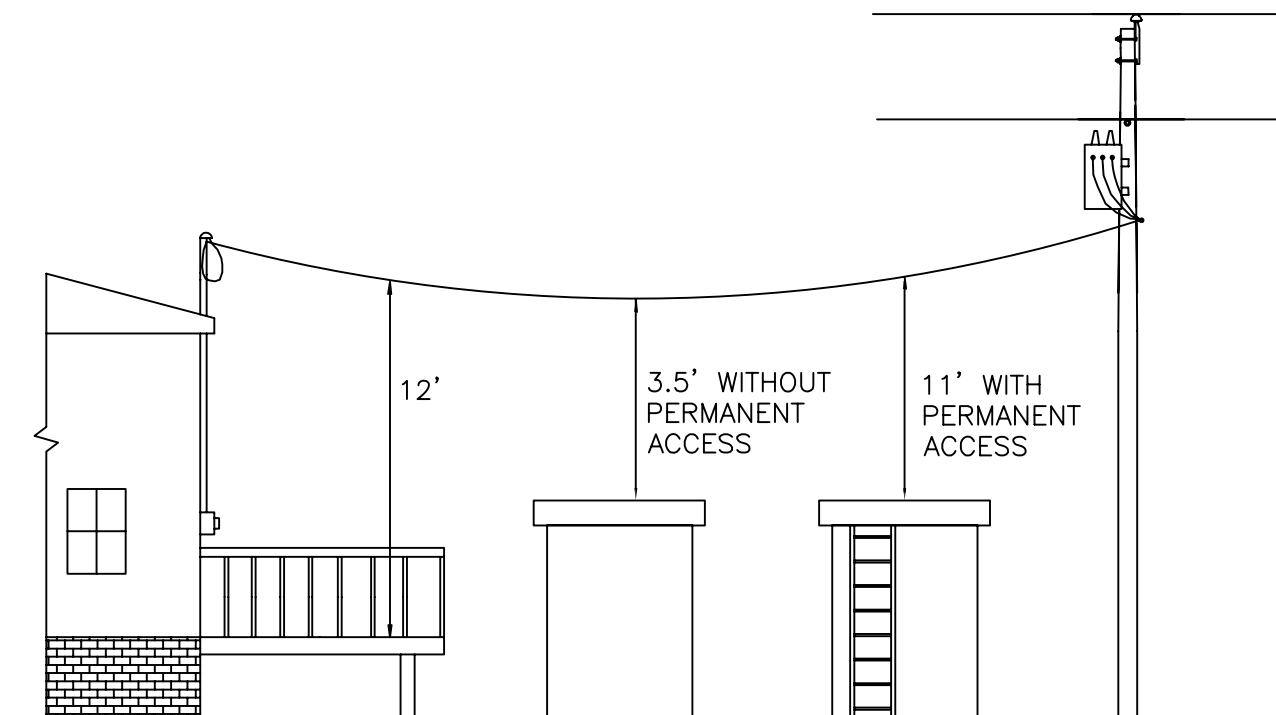
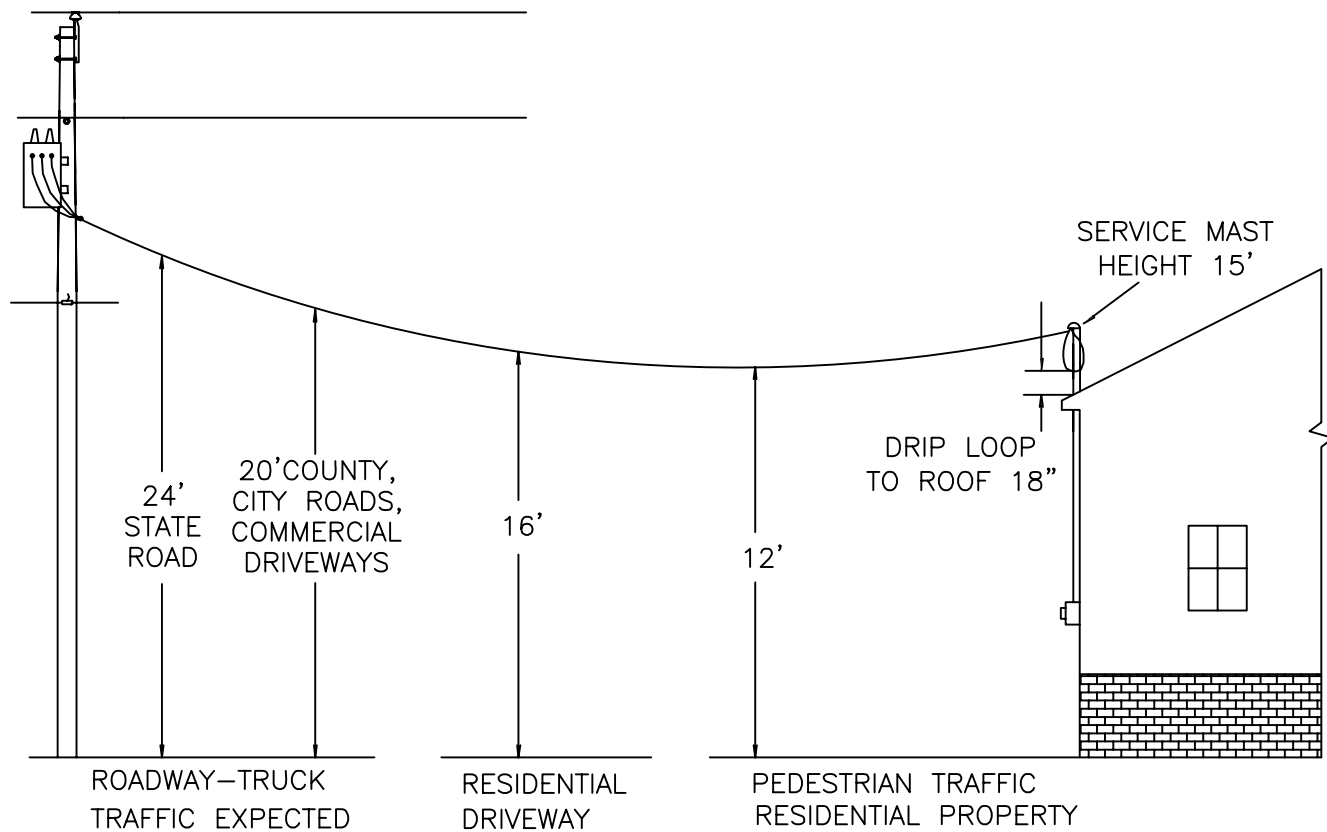
Net Metering is the measurement of the difference between the electricity supplied by the Cooperative and the electricity generated by a member-generator that is fed back to the Cooperative over the applicable billing period.

A Net Metering System is a fuel cell, a facility that produces electricity and useful thermal energy from a common fuel source, or a facility for the production of electrical energy that:

- a. Uses either water, wind, solar energy, or biogas from animal waste as a fuel;
- b. Has an electrical generating capacity of not more than one hundred kilowatts;
- c. Is located on the member-generator's premises and for which the Cooperative has, at the time of application as member-generator, an active account in the member-generator's name;
- d. Operates in parallel with the Cooperative's distribution facilities; and
- e. Is intended to offset part or all of the member-generator's requirements for electricity.

The Cooperative will require a written application from member-generators for all Net Metering Systems, clearly detailing member-generators' proposals **before any action** will be taken by the Cooperative. Such application will include the size, location, fuel source and equipment configuration of such proposed installation. Applications will be processed in the order received by the Cooperative, and on a first-come first-served basis. An application fee does apply.

Call the Cooperative for more information in regards to your project.



MINIMUM CLEARANCES SHOWN.
BASED ON NESC 2007, STATE OR
COUNTY REQUIREMENTS.

NOT ALL POSSIBLE CLEARANCE
SITUATIONS SHOWN.

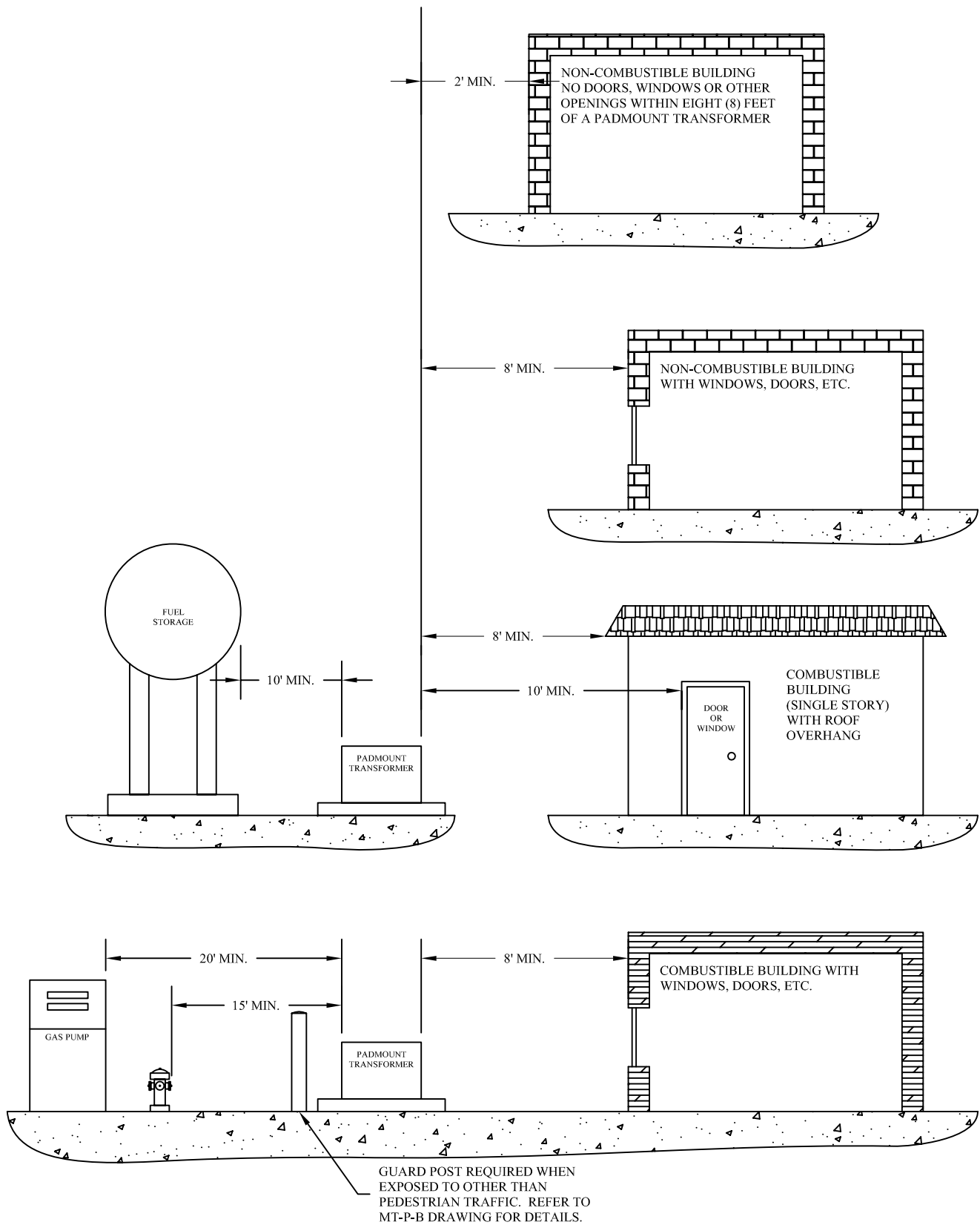
CLEARANCES — OVERHEAD SECONDARY

MAY 2011

BBEC

GENERAL
INFORMATION

MT—C—O



MINIMUM CLEARANCES SHOWN.
BASED ON NESC 2007, STATE OR
COUNTY REQUIREMENTS.

NOT ALL POSSIBLE CLEARANCE
SITUATIONS SHOWN.

CLEARANCES – SURFACE EQUIPMENT

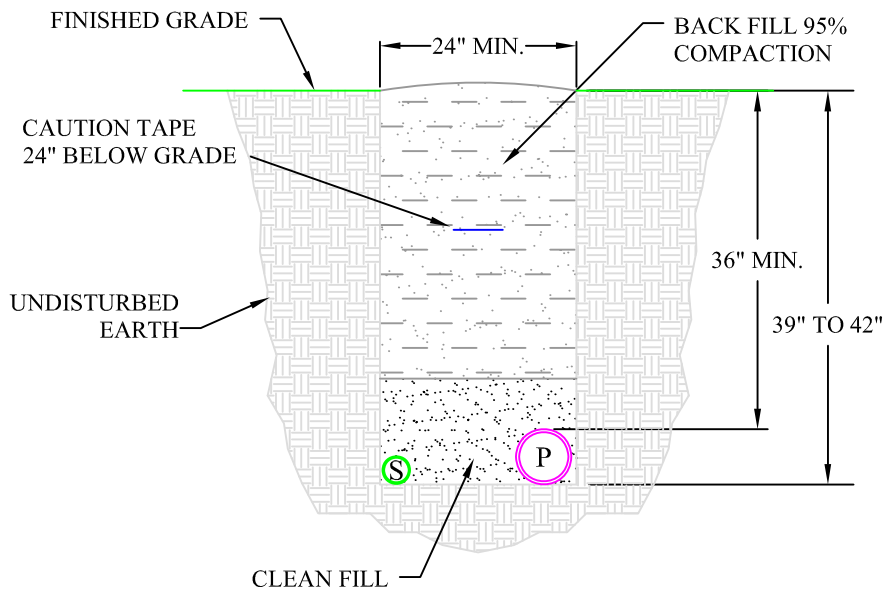
MAY 2011

BBEC

GENERAL
INFORMATION

MT-C-S

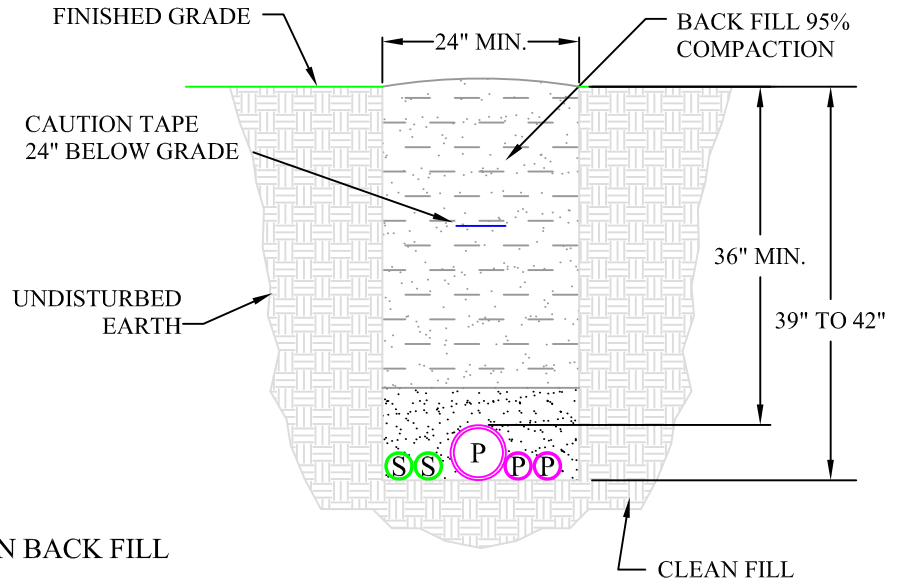
TRENCH WITH PRIMARY
AND SECONDARY

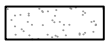
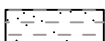





NOTES:

1. CLEAN FILL TO BE USED FOR A MINIMUM OF 6" ABOVE PRIMARY CONDUIT(S).
2. CONTACT ENGINEERING FOR JOINT TRENCH STANDARDS.

TRENCH WITH MULTIPLE PRIMARY AND
SECONDARY



-  SAND OR CLEAN SOIL
-  95% MIN. COMPACTION BACK FILL
-  UNDISTURBED EARTH
-  PRIMARY POWER
-  SECONDARY POWER

MINIMUM CLEARANCES SHOWN.
BASED ON NESC 2007 OR STATE
REQUIREMENTS.

SEE MT-P-T AND MT-S-T FOR
MORE INFORMATION.

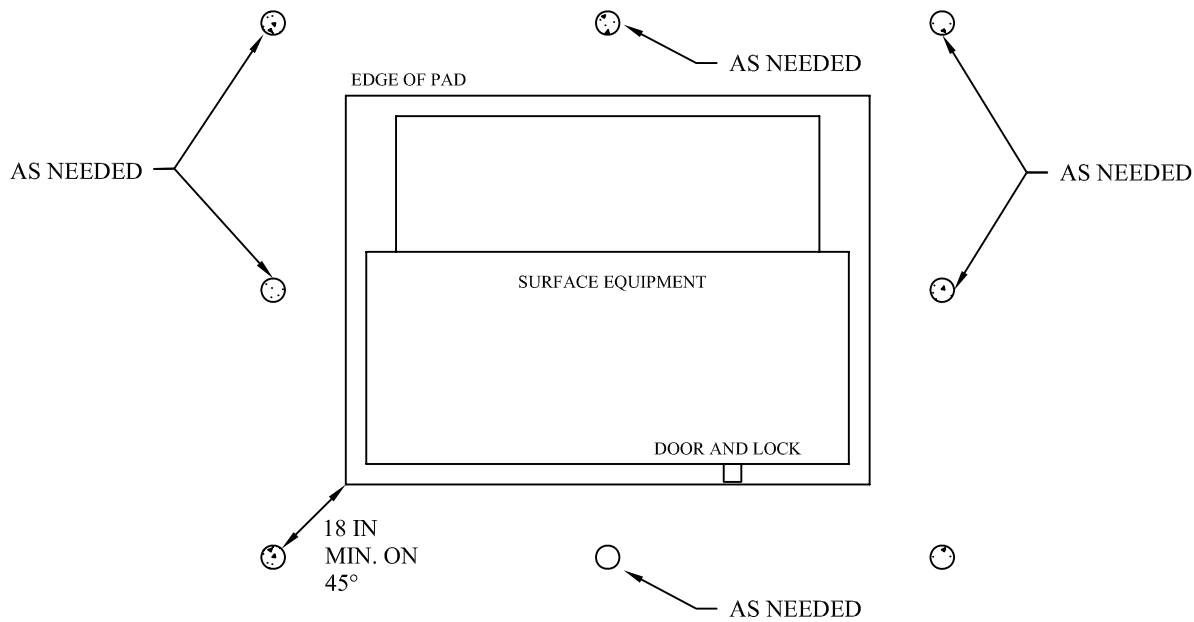
CLEARANCES —
TRENCH

MAY 2011

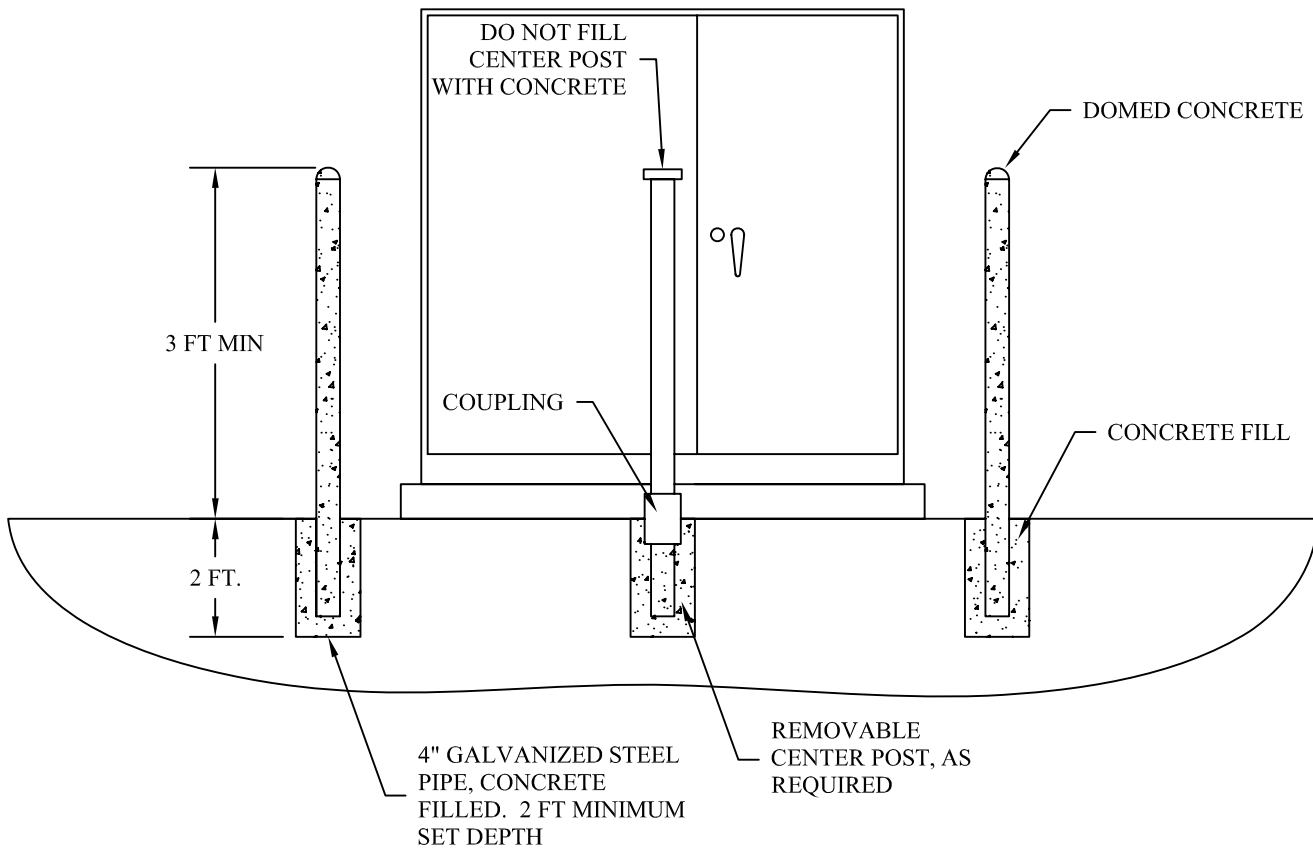
BBEC

GENERAL
INFORMATION

MT-C-T



- NOTES:
 1. NO MORE THAN 5 FT BETWEEN POSTS.



SEE MT-C-S FOR CLEARANCES FROM OTHER STRUCTURES

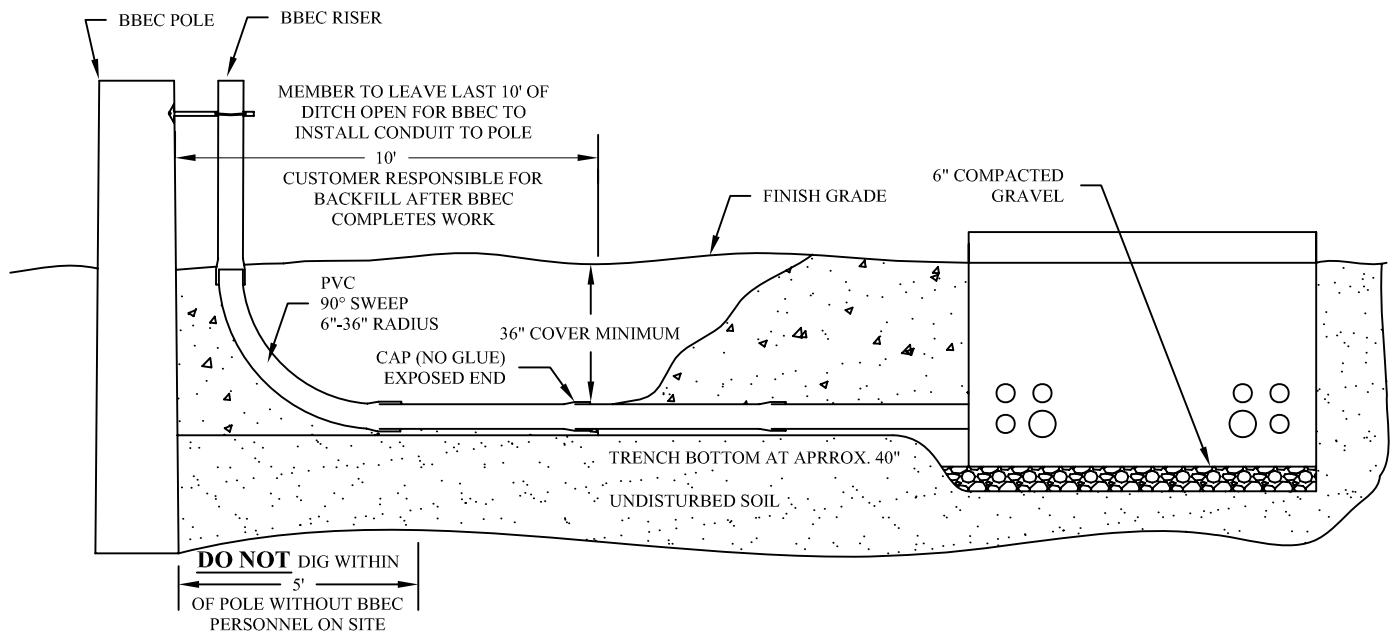
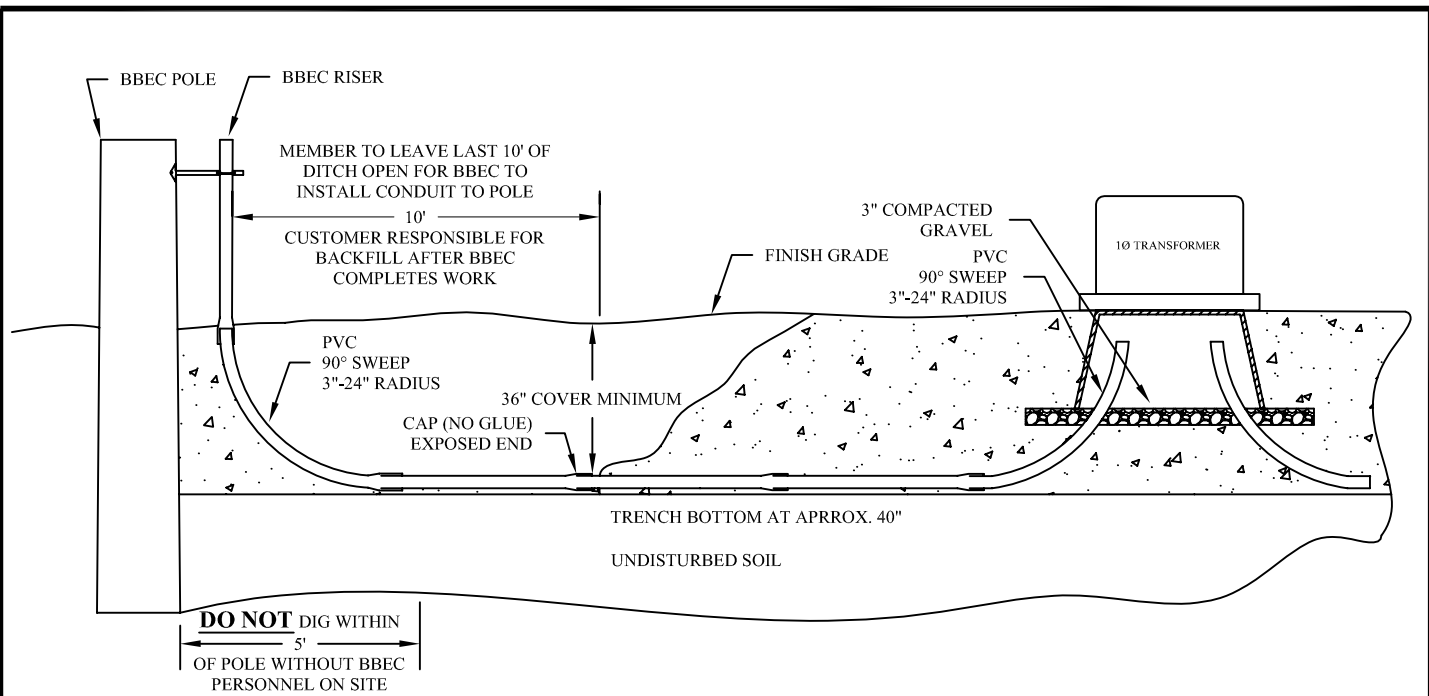
PRIMARY EQUIPMENT – TRAFFIC BOLLARDS

MAY 2011

BBEC

GENERAL
INFORMATION

MT-P-B



ALL TRENCHES AND CONDUIT SUPPLIED BY MEMBERS ARE TO BE INSPECTED BY BBEC PERSONNEL PRIOR TO BACKFILL.

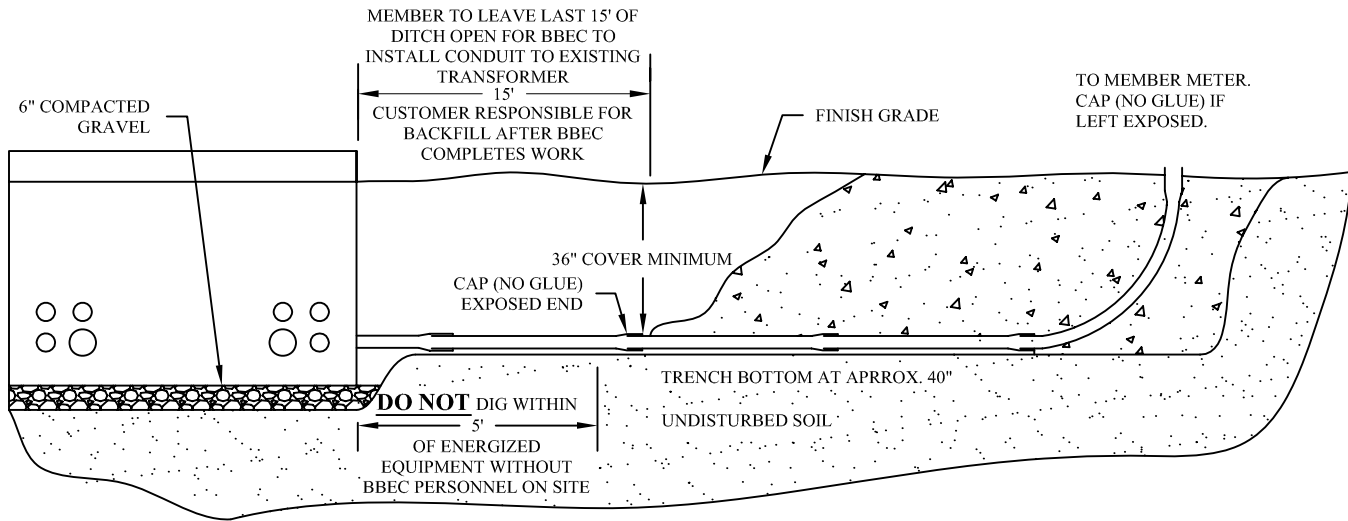
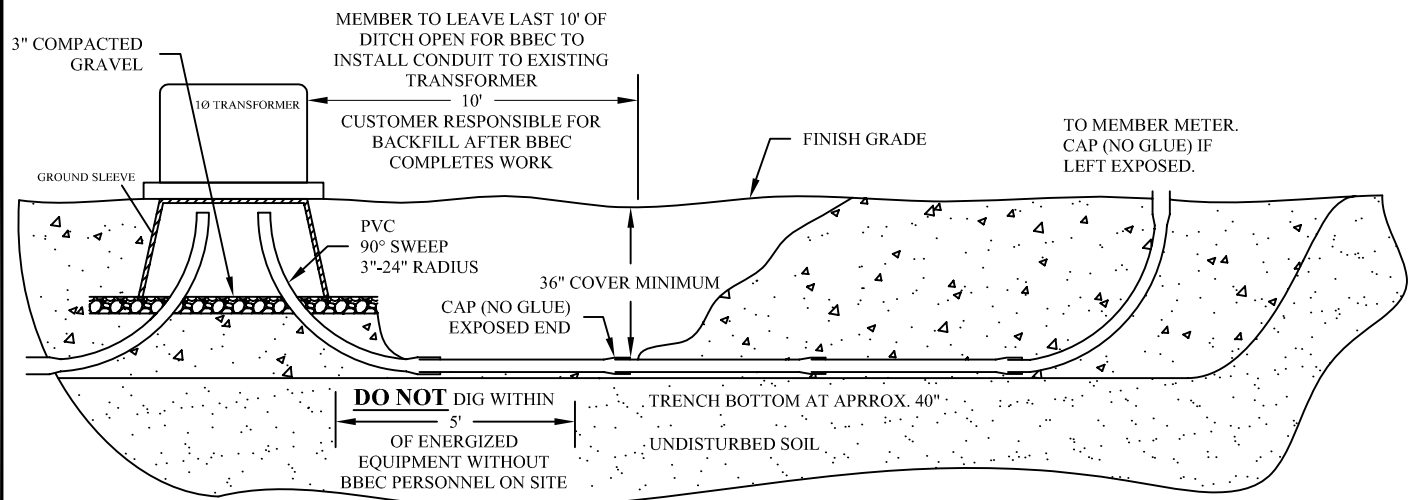
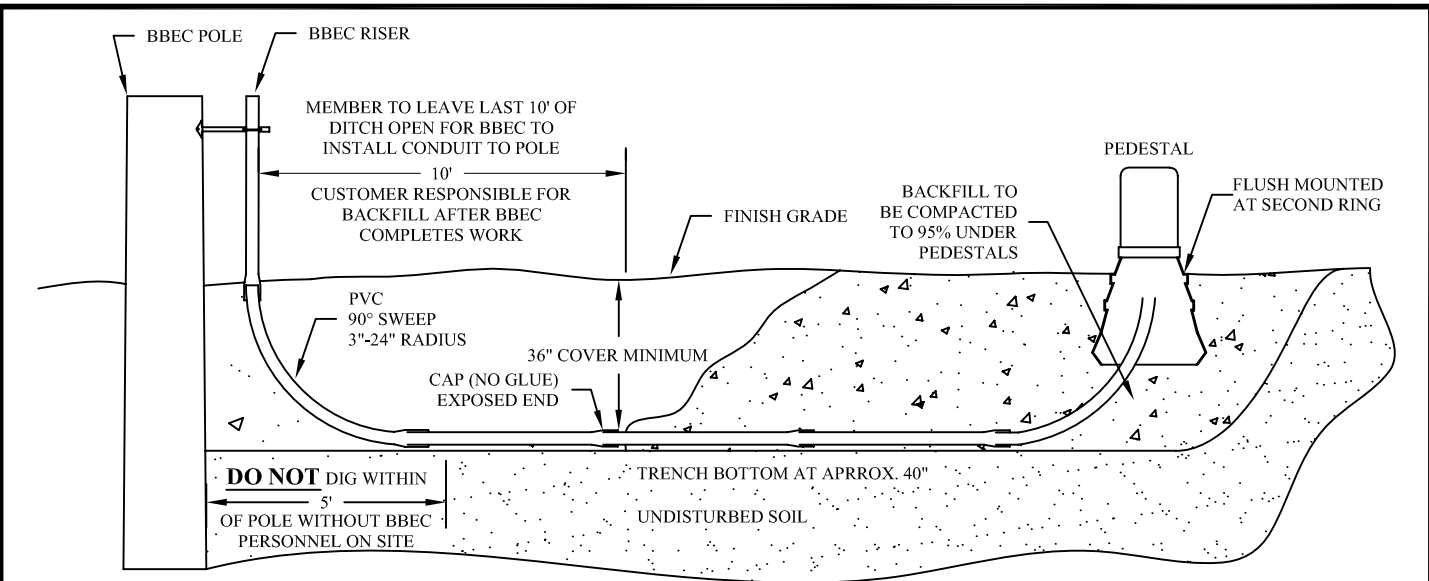
PRIMARY –
TRENCH

MAY 2011

BBEC

GENERAL
INFORMATION

MT-P-T



ALL TRENCHES AND CONDUIT SUPPLIED BY MEMBERS ARE TO BE INSPECTED BY BBEC PERSONNEL PRIOR TO BACKFILL.

TRENCH – SECONDARY

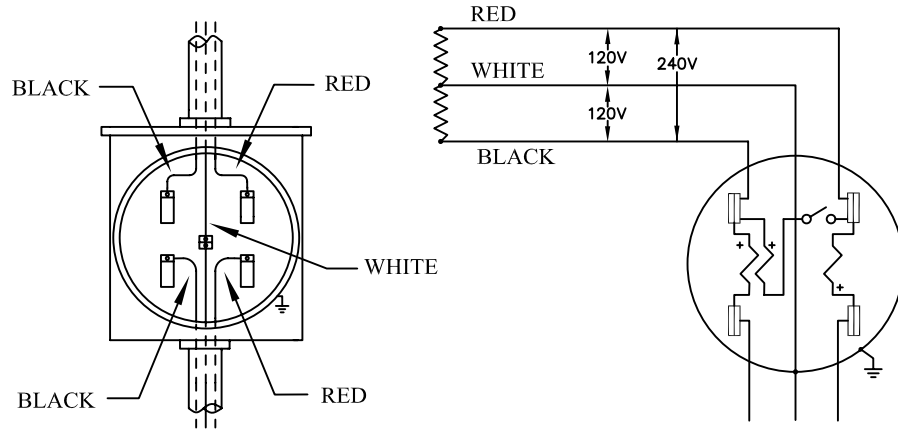
MAY 2011

BBEC

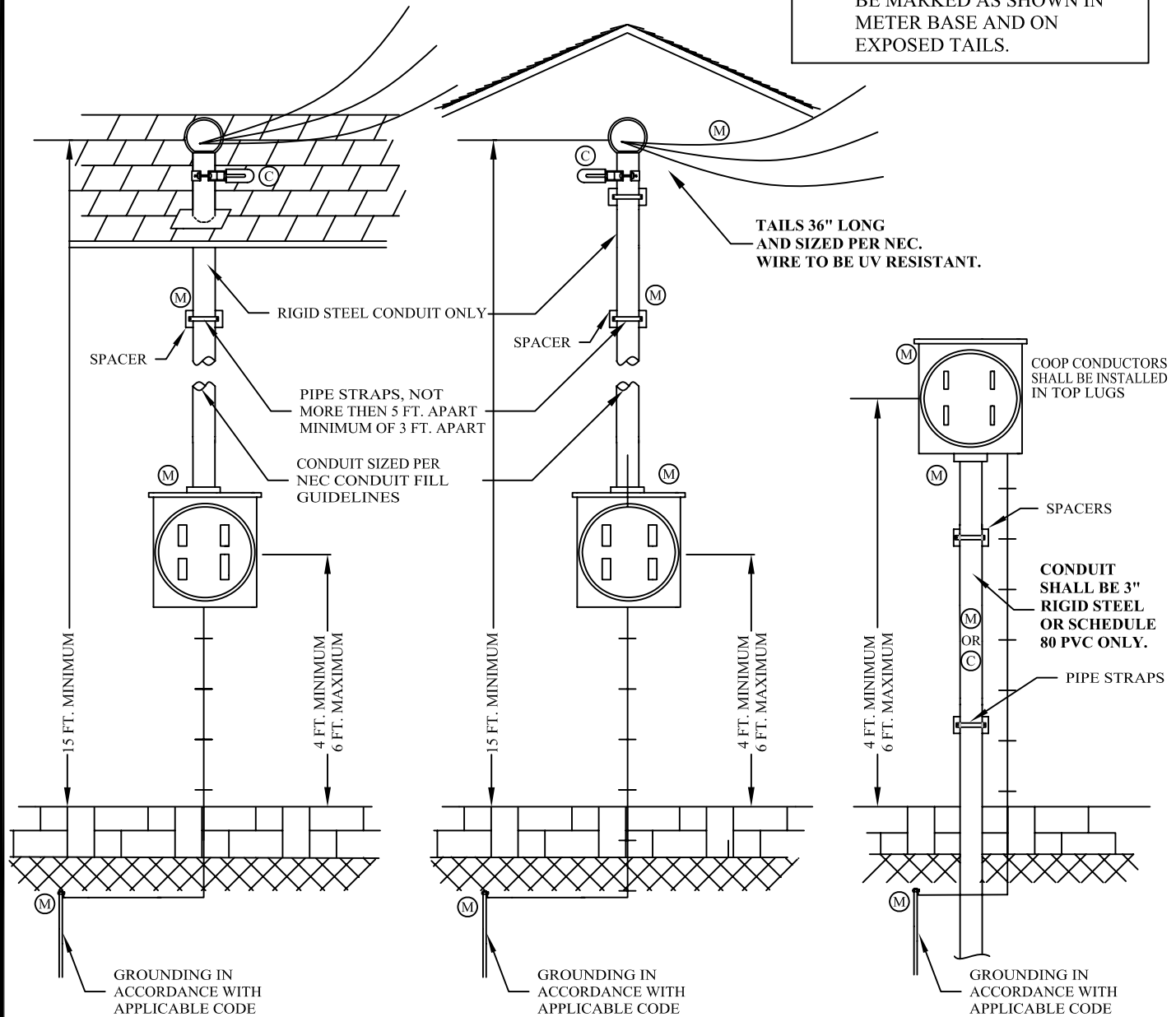
GENERAL
INFORMATION

MT-S-T

WIRING DIAGRAM



- NOTES:**
1. MAST CLAMP AND INSULATOR ASSEMBLY TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL.
 2. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
 3. RESPONSIBILITY:
 - Ⓢ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
 4. MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN METER BASE AND ON EXPOSED TAILS.

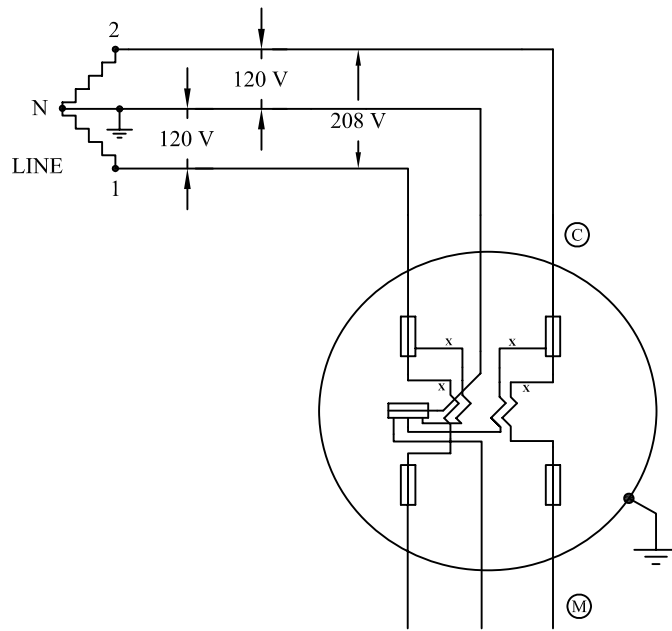
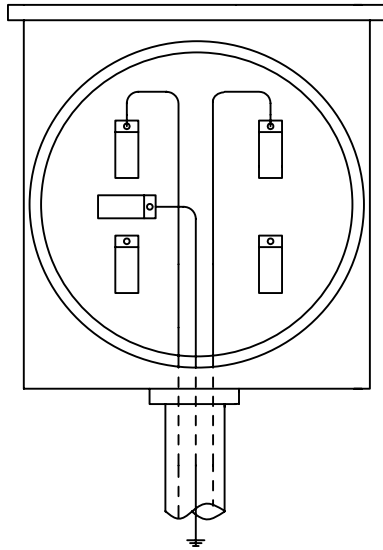


SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

SELF CONTAINED
METERING – BUILDING

JAN 2013	1-PHASE METERING 120/240 VOLTS	MT1-B
BBEC		

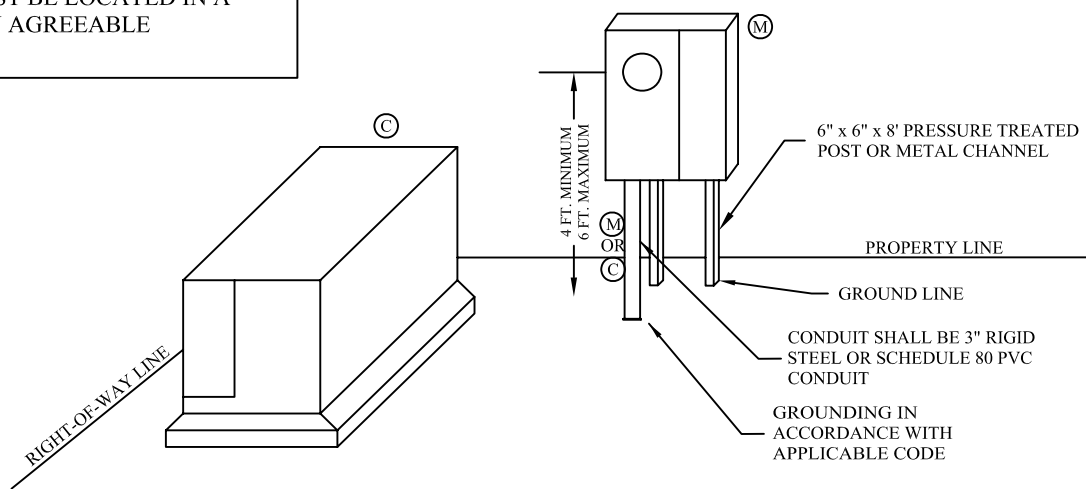
WIRING DIAGRAM
BBEC CONDUCTOR SHOWN



FROM 120/208 VOLTS THREE PHASE SOURCE

NOTES:

1. CONDUCTORS FROM TRANSFORMER TO METER BASE TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL.
2. RESPONSIBILITY
 - Ⓒ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
3. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
4. METER MUST BE LOCATED IN A MUTUALLY AGREEABLE LOCATION.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

**SELF CONTAINED
METERING – NETWORK**

JAN 2013

1-PHASE METERING
120/208 VOLTS

MT1-N

BBEC

APPROXIMATE CONDUIT LENGTHS

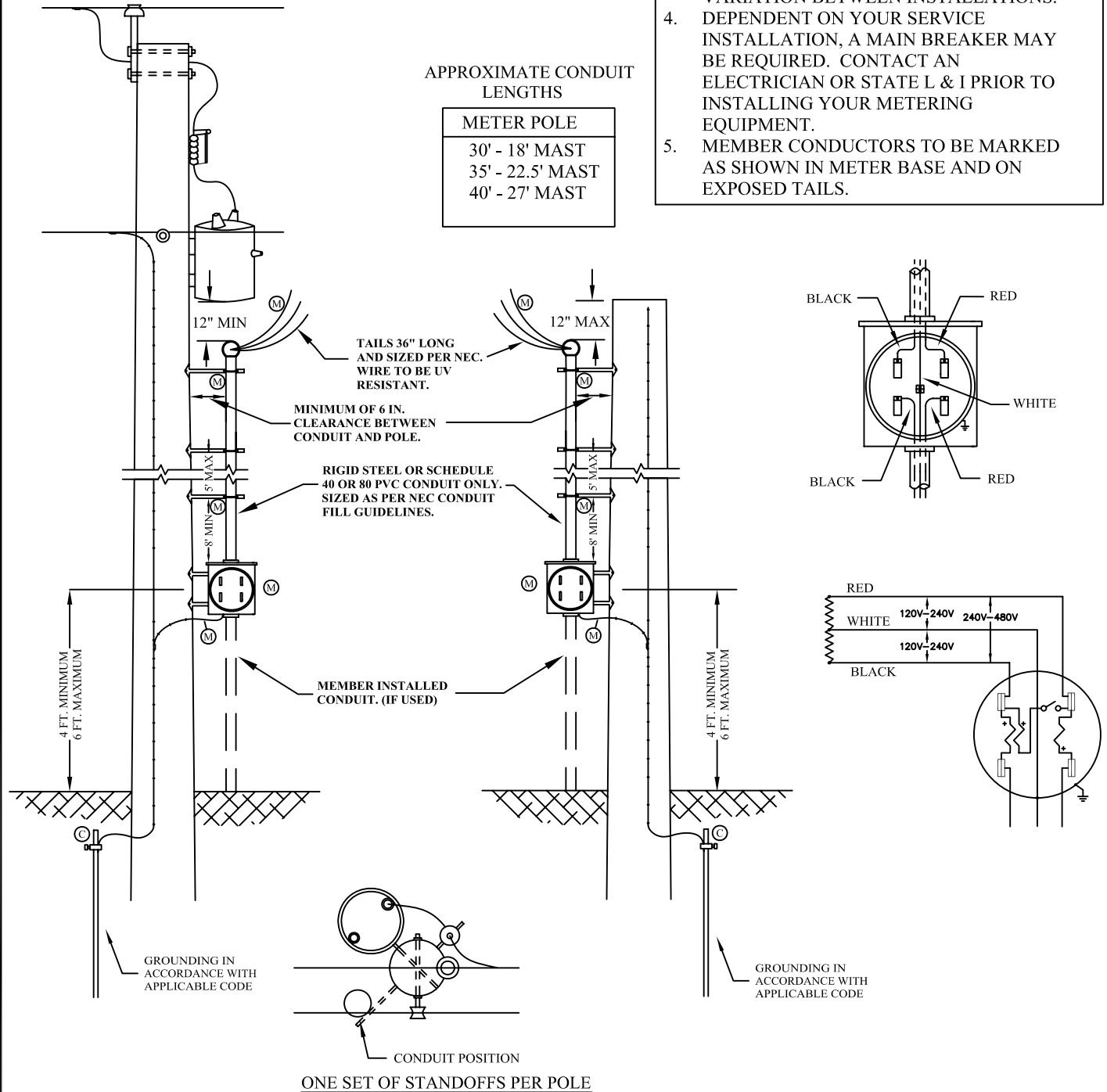
TRANSFORMER POLE
35' - 14' MAST
40' - 19' MAST
45' - 23.5' MAST

APPROXIMATE CONDUIT LENGTHS

METER POLE
30' - 18' MAST
35' - 22.5' MAST
40' - 27' MAST

NOTES:

- RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
- METERING TO BE INSTALLED AFTER THE INSTALLATION OF BBEC EQUIPMENT AS CONDUIT LENGTHS ARE DEPENDENT ON POLE SIZE AND EQUIPMENT ON POLE.
- ALL METER MAST LENGTHS GIVEN ARE APPROXIMATE AND SUBJECT TO VARIATION BETWEEN INSTALLATIONS.
- DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
- MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN METER BASE AND ON EXPOSED TAILS.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

SELF CONTAINED METERING – POLE

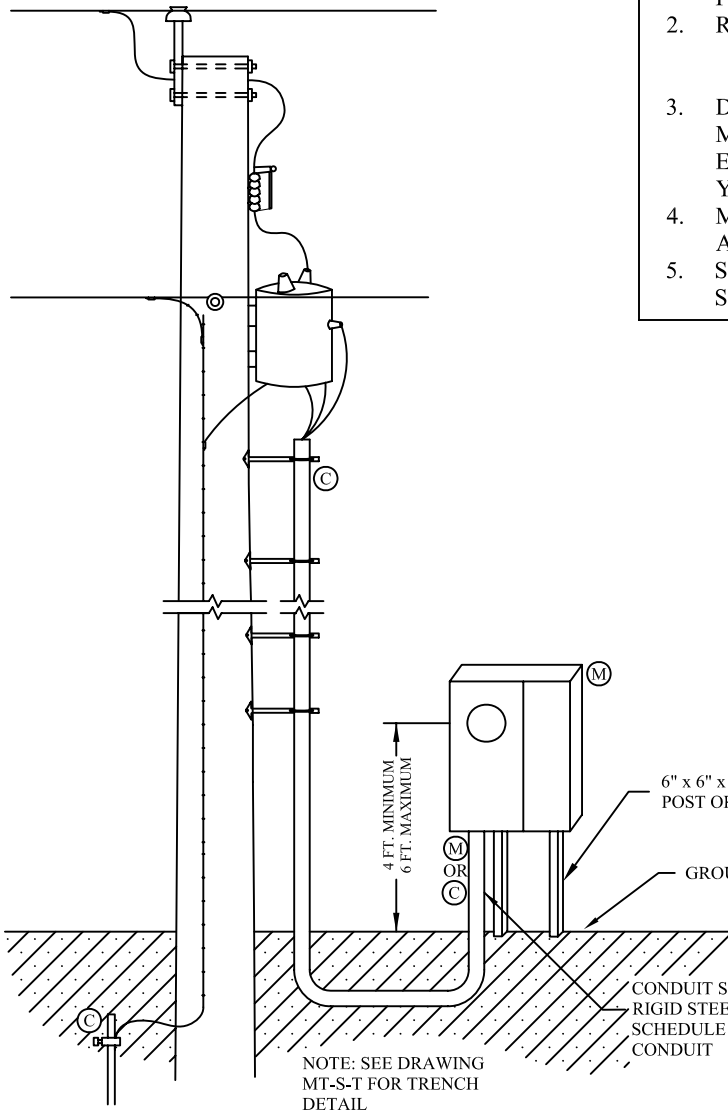
JAN 2013
BBEC

1-PHASE METERING
120/240, 240/480

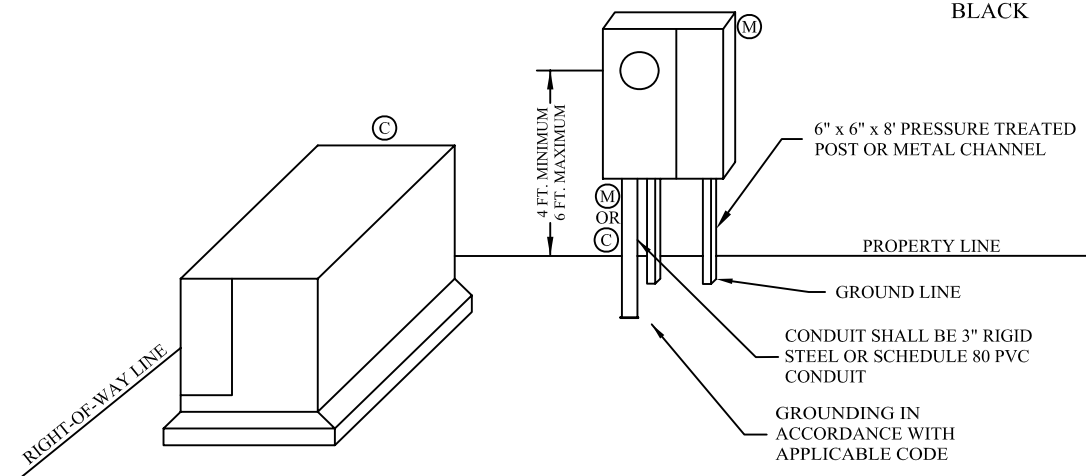
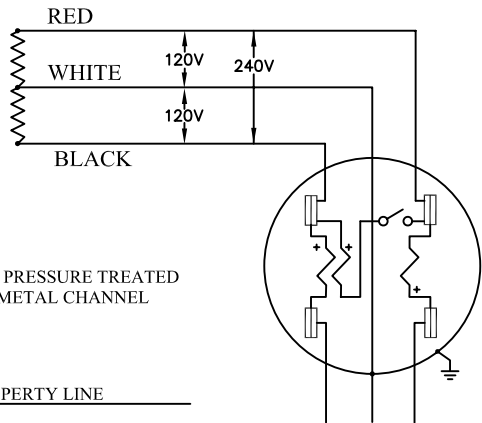
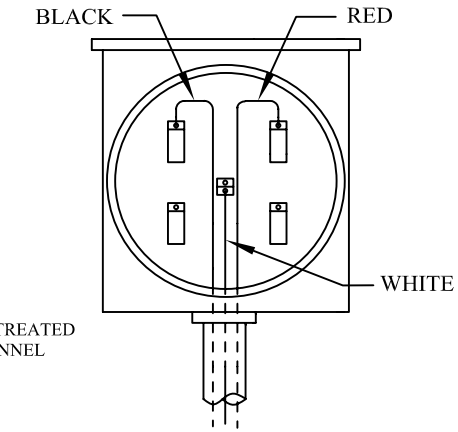
MT1-P

NOTES:

1. CONDUCTORS FROM TRANSFORMER TO METER BASE TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL.
2. RESPONSIBILITY
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
3. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT
4. METER MUST BE LOCATED IN A MUTUALLY AGREEABLE LOCATION.
5. SECONDARY TRENCH AND CONDUIT MAY BE SUPPLIED BY MEMBER.



WIRING DIAGRAM
BBEC CONDUCTOR SHOWN



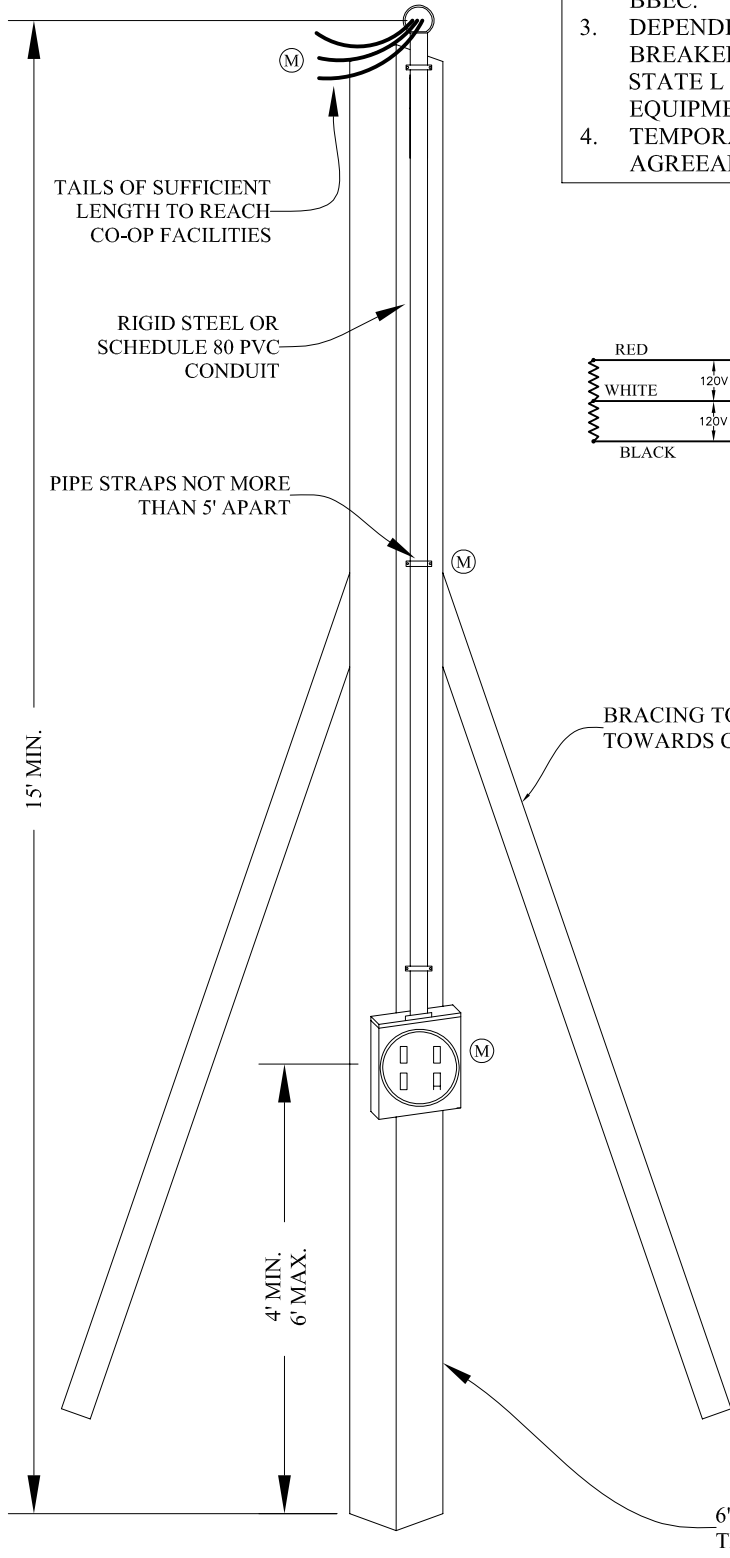
SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

SELF CONTAINED
METERING – REMOTE

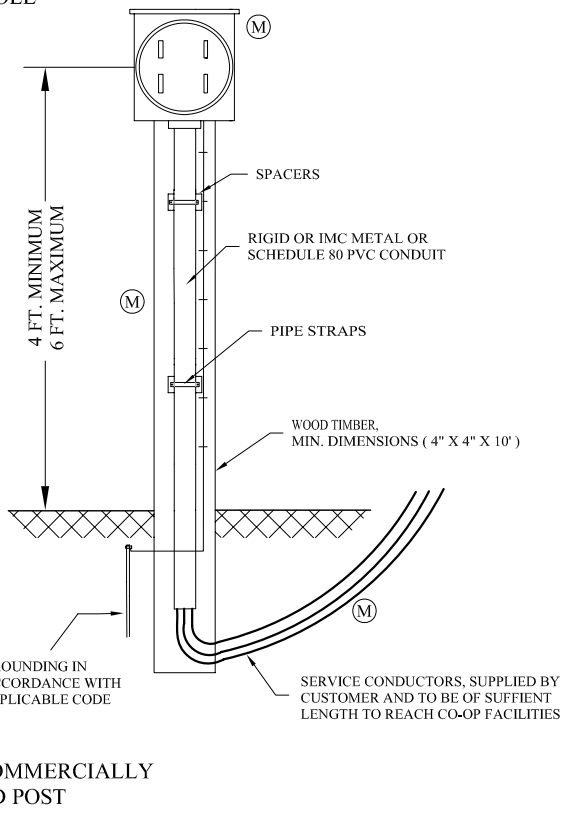
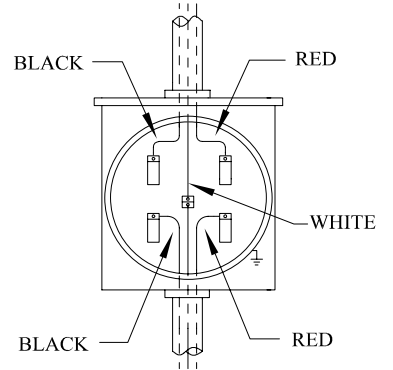
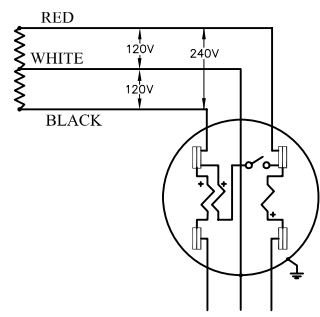
JAN 2013	1-PHASE METERING	MT1-R
BBEC	120/240, 240/480 VOLTS	

NOTES:

1. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
2. SERVICE TO WEATHER HEAD AND METER FURNISHED BY BBEC.
3. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
4. TEMPORARY METER BASE TO BE LOCATED IN A MUTUALLY AGREEABLE LOCATION.



WIRING DIAGRAM



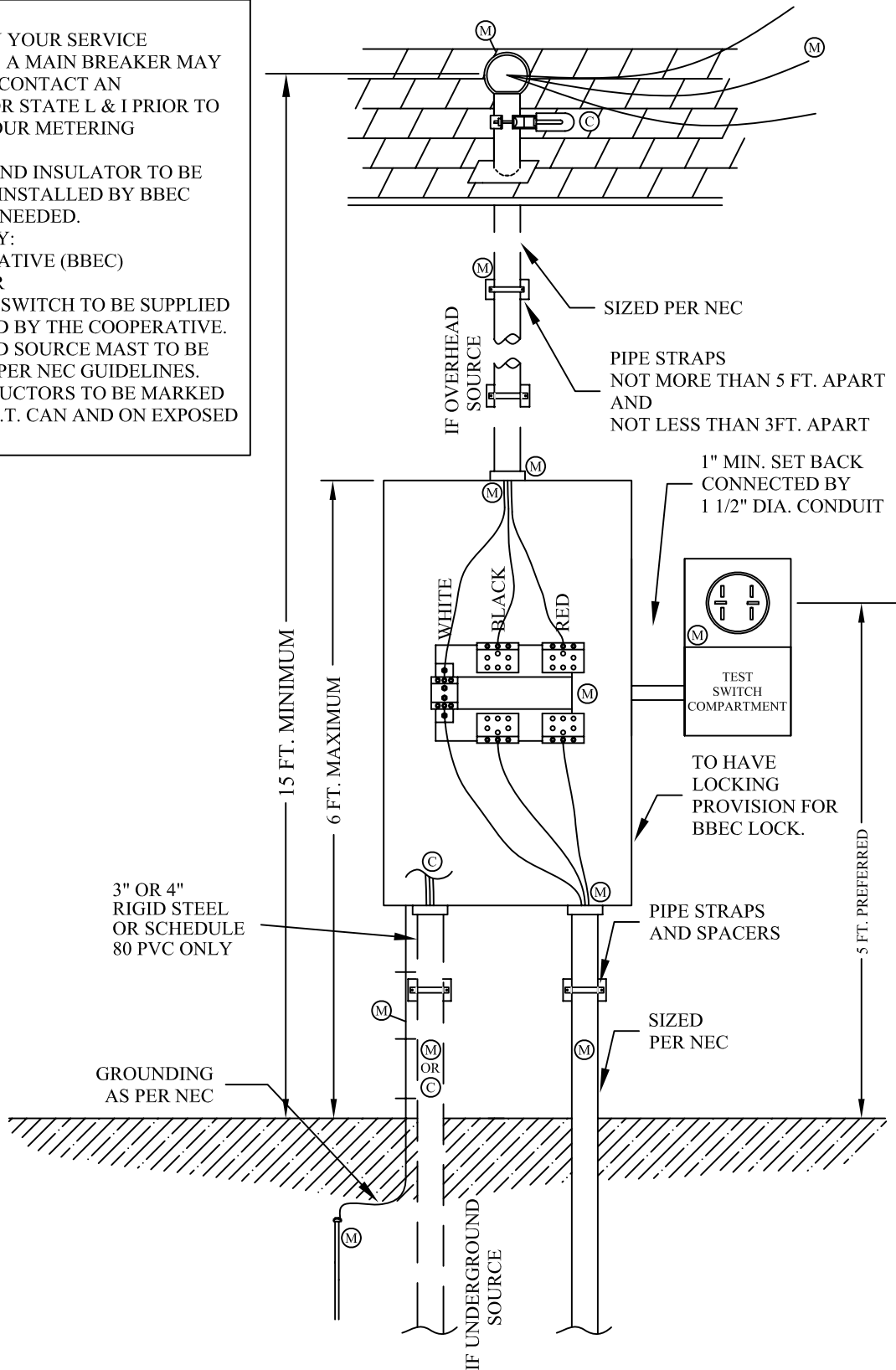
SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

INTENDED TO BE USED FOR TEMPORARY CONSTRUCTION POWER ONLY. MAX 200 AMPS.

SELF CONTAINED		
METERING – TEMPORARY		
MAY 2011	1-PHASE METERING	
BBEC	120/240 VOLTS	MT1-T

NOTES:

1. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
2. MAST CLAMP AND INSULATOR TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL, IF NEEDED.
3. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
4. CT'S AND TEST SWITCH TO BE SUPPLIED AND INSTALLED BY THE COOPERATIVE.
5. ANY OVERHEAD SOURCE MAST TO BE INSTALLED AS PER NEC GUIDELINES.
6. MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN C.T. CAN AND ON EXPOSED TAILS.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

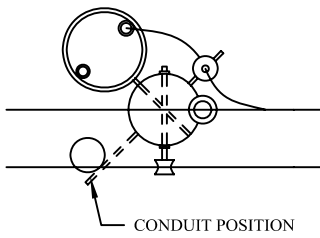
CURRENT TRANSFORMER (CT) METERING – BUILDING

JAN 2013

BBEC

1-PHASE METERING
120/240 VOLTS

MT1-CT-B



ONE SET OF STANDOFFS PER POLE

APPROXIMATE CONDUIT LENGTHS

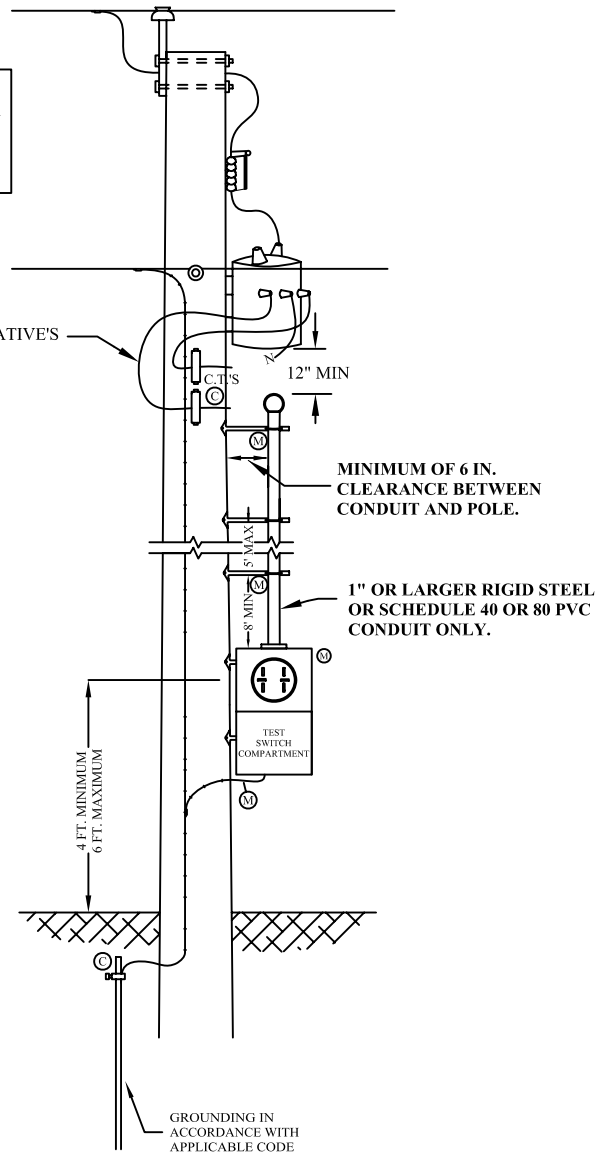
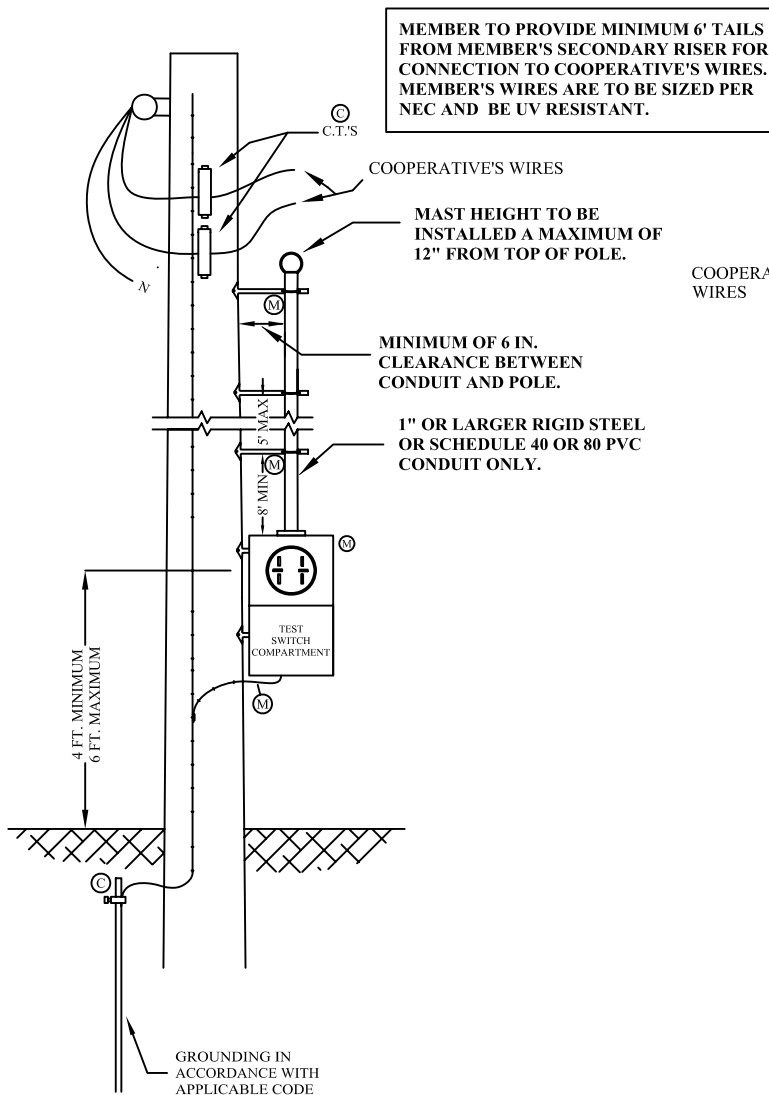
METER POLE
30' - 18' MAST
35' - 22.5' MAST
40' - 27' MAST

APPROXIMATE CONDUIT LENGTHS

TRANSFORMER POLE
35' - 14' MAST
40' - 19' MAST
45' - 23.5' MAST

NOTES:

- RESPONSIBILITY:
 - (C) COOPERATIVE (BBEC)
 - (M) MEMBER
- METERING TO BE INSTALLED AFTER THE INSTALLATION OF BBEC EQUIPMENT AS CONDUIT LENGTHS ARE DEPENDENT ON POLE SIZE AND EQUIPMENT ON POLE.
- ALL METER MAST LENGTHS GIVEN ARE APPROXIMATE AND SUBJECT TO VARIATION BETWEEN INSTALLATIONS.
- TEST SWITCH TO BE SUPPLIED AND INSTALLED BY BBEC.
- MEMBER SECONDARY RISER(S) TO BE INSTALLED ON BACK OF METER BASE STANDOFF BRACKETS.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

CURRENT TRANSFORMER (C.T.)
METERING - POLE

JAN 2013

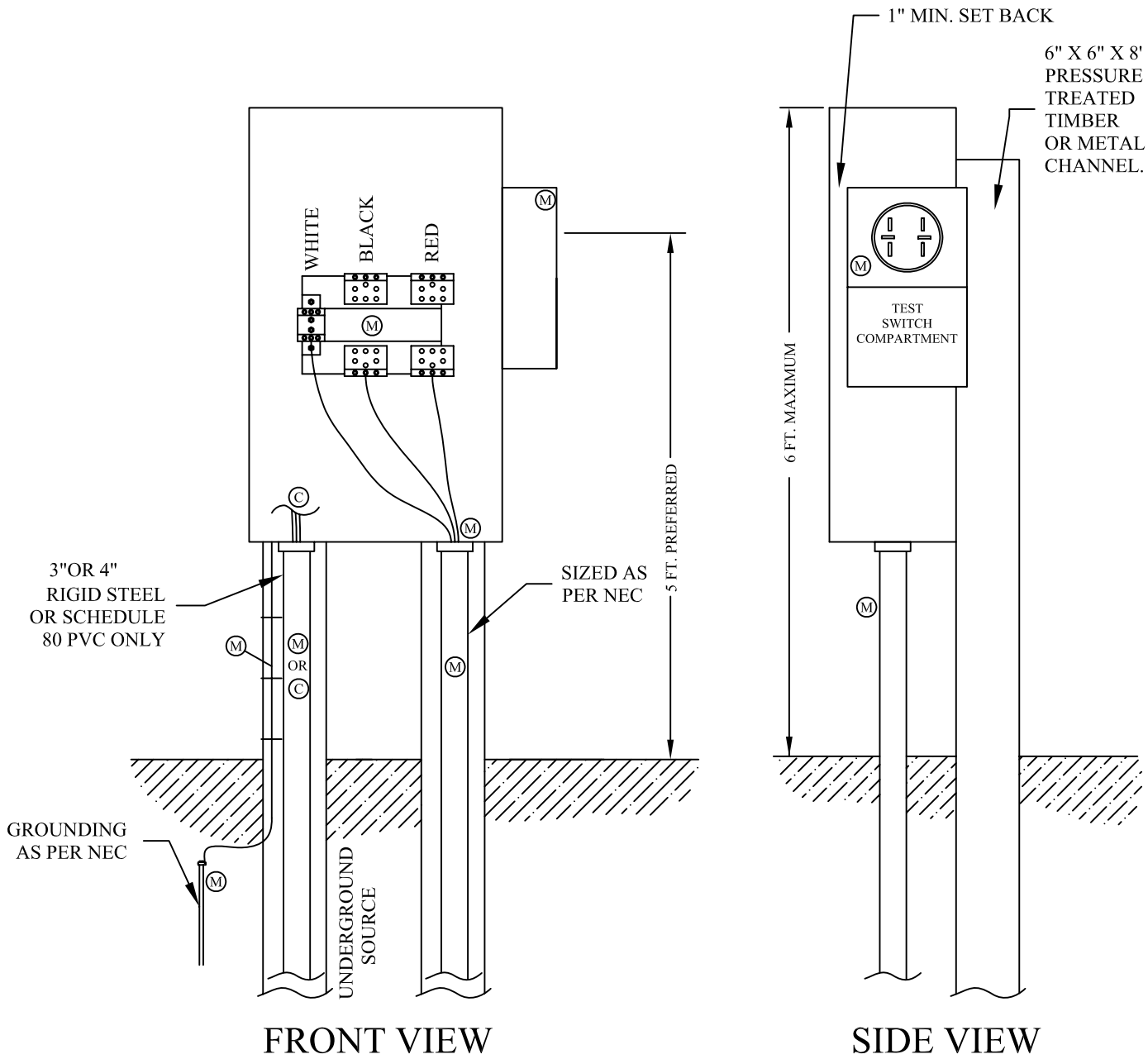
BBEC

1-PHASE METERING
120/240, 240/480

MT1-CT-P

NOTES:

1. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
2. RESPONSIBILITY:
 - Ⓒ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
3. CT'S AND TEST SWITCH TO BE SUPPLIED AND INSTALLED BY THE COOPERATIVE.
4. METERING TO BE LOCATED IN A MUTUALLY AGREED UPON LOCATION.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

CURRENT TRANSFORMER (CT)
METERING – REMOTE

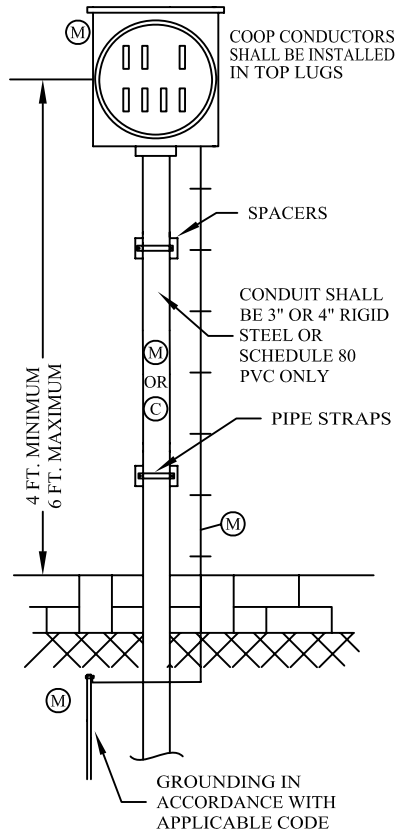
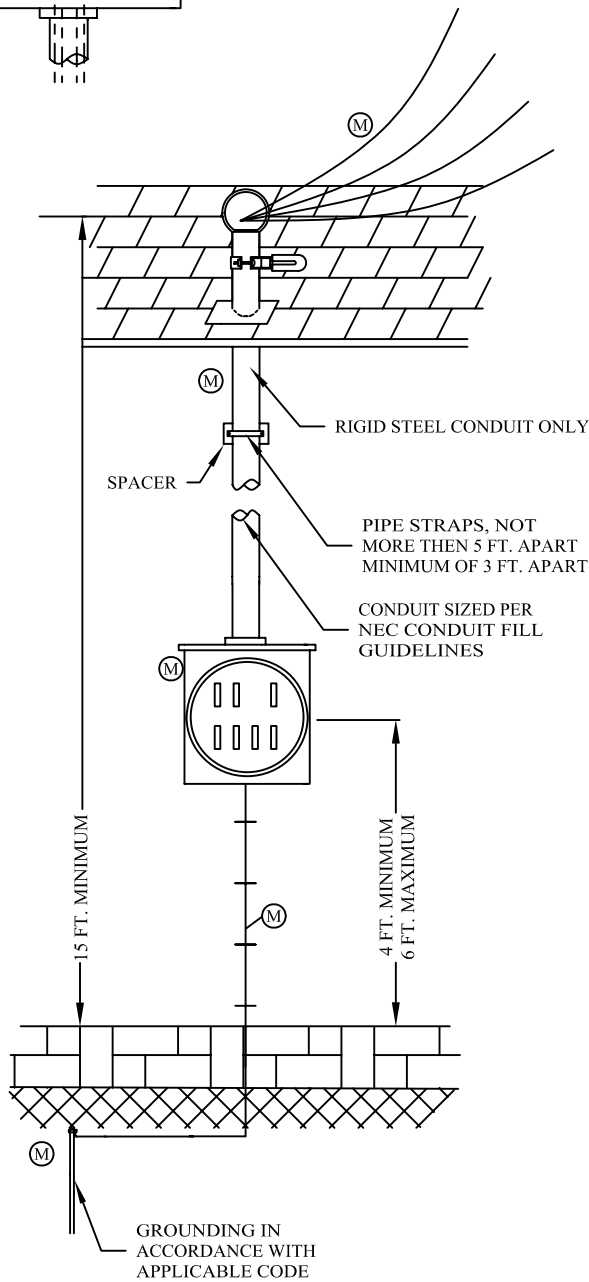
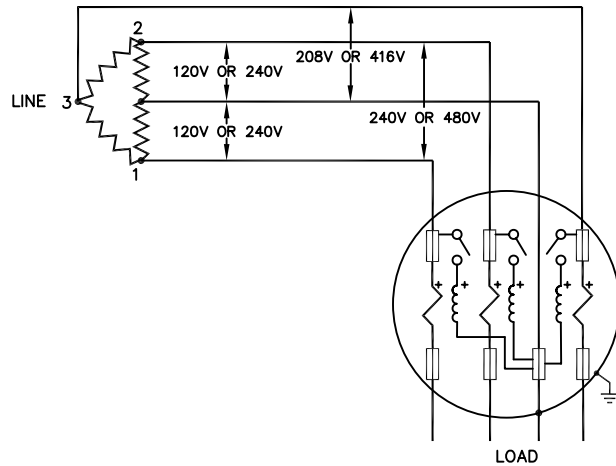
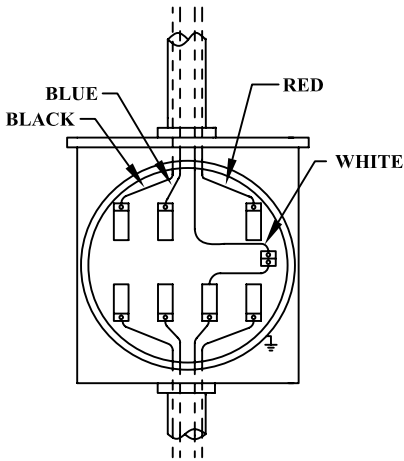
JAN 2013	1-PHASE METERING 120/240 VOLTS	MT1-CT-R
BBEC		

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WIRING DIAGRAM

NOTES:

1. MAST CLAMP AND INSULATOR ASSEMBLY TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL.
2. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
3. RESPONSIBILITY:
 - Ⓢ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
4. MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN METER BASE AND ON EXPOSED TAILS.



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

SELF CONTAINED METERING – BUILDING

JAN 2013

3-PHASE METERING
120/208, 120/240, 240/480,
277/480 VOLTS

MT3-B

BBEC

APPROXIMATE CONDUIT LENGTHS

TRANSFORMER POLE

35' - 11' MAST
40' - 16' MAST
45' - 20.5' MAST

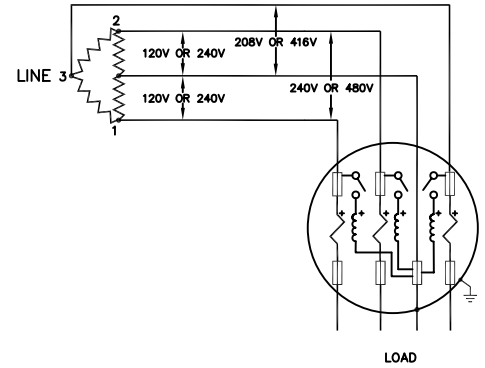
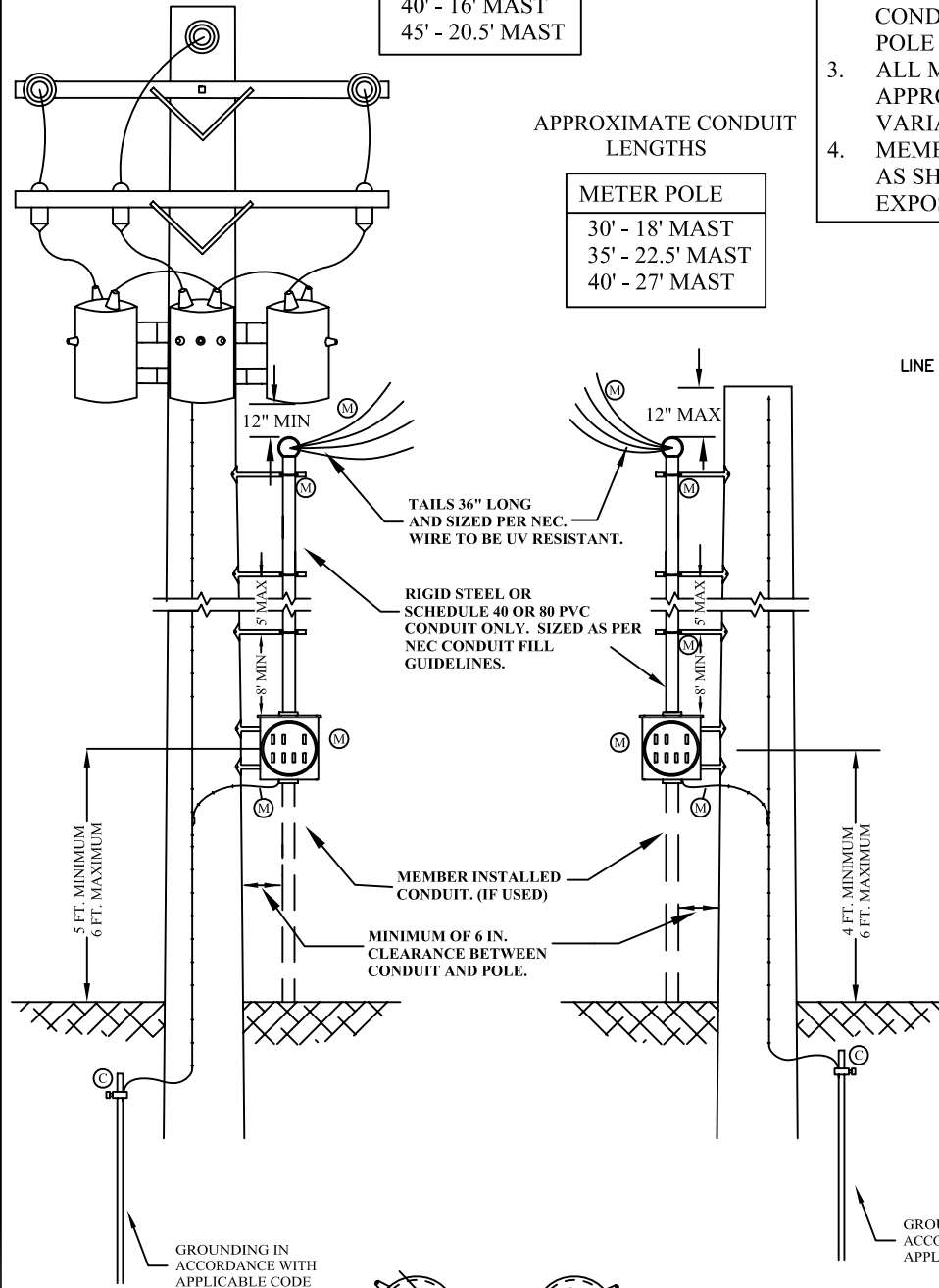
APPROXIMATE CONDUIT LENGTHS

METER POLE

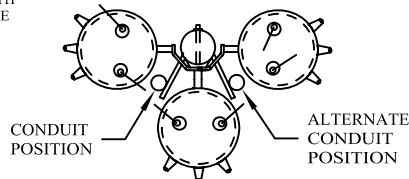
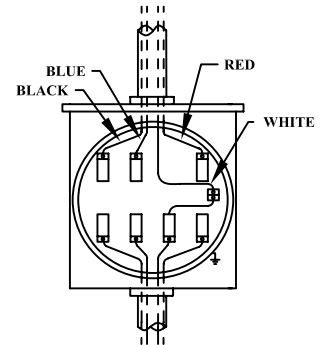
30' - 18' MAST
35' - 22.5' MAST
40' - 27' MAST

NOTES:

- RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
- METERING TO BE INSTALLED AFTER THE INSTALLATION OF BBEC EQUIPMENT AS CONDUIT LENGTHS ARE DEPENDENT ON POLE SIZE AND EQUIPMENT ON POLE.
- ALL METER MAST LENGTHS GIVEN ARE APPROXIMATE AND SUBJECT TO VARIATION BETWEEN INSTALLATIONS.
- MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN METER BASE AND ON EXPOSED TAILS.



WIRING DIAGRAM



ONE SET OF STANDOFFS PER POLE

SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

SELF CONTAINED METERING - POLE

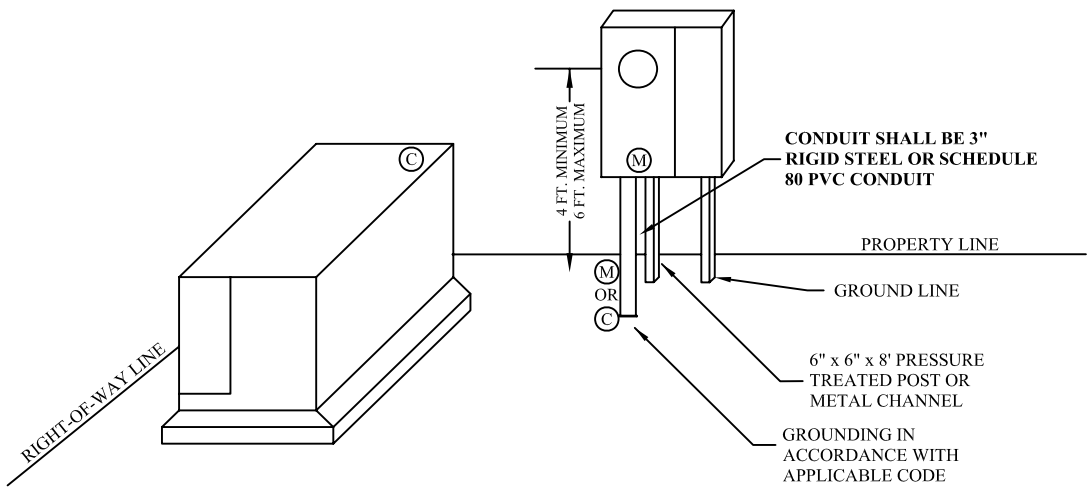
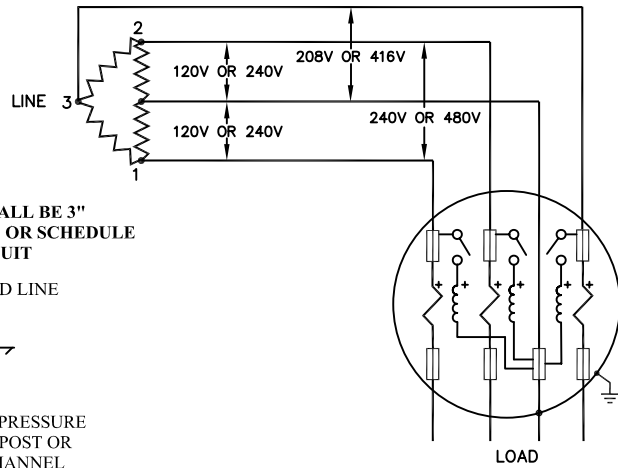
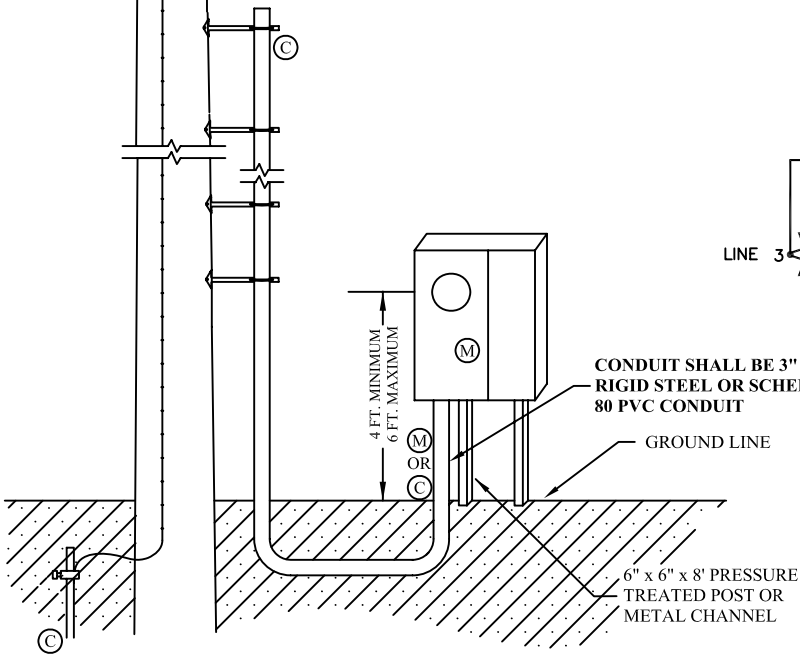
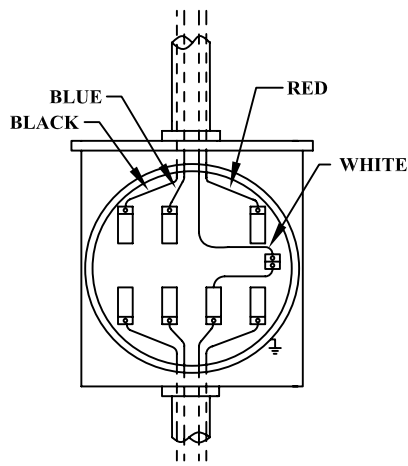
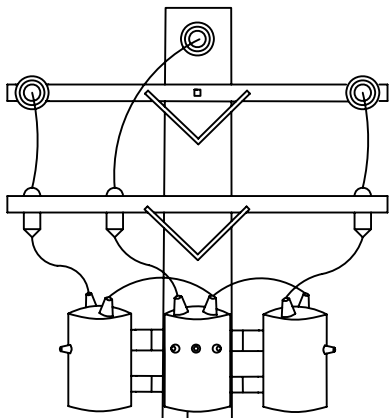
JAN 2013
BBEC

3-PHASE METERING
120/208, 120/240, 240/480

MT3-P

WIRING DIAGRAM

- NOTES:**
1. CONDUCTORS FROM TRANSFORMER TO METER BASE TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL.
 2. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
 3. METERING TO BE LOCATED IN A MUTUALLY AGREED UPON LOCATION.
 4. SECONDARY TRENCH AND CONDUIT MAY BE SUPPLIED BY MEMBER.



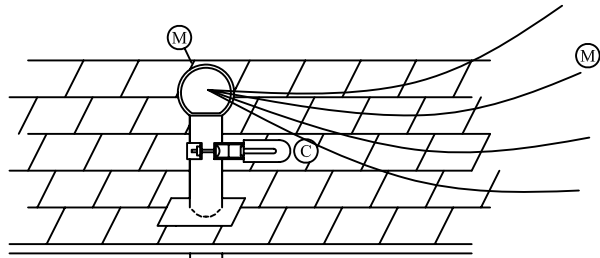
SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

SELF CONTAINED METERING – REMOTE

JAN 2013	3-PHASE METERING	
BBEC	120/208, 120/240, 240/480, 277/480 VOLTS	MT3-R

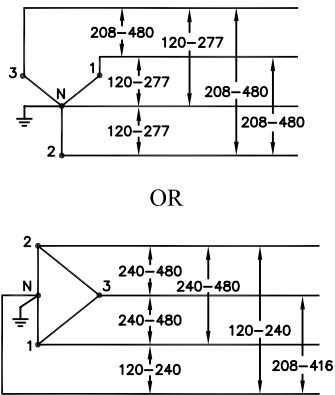
NOTES:

1. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
2. MAST CLAMP AND INSULATOR TO BE SUPPLIED AND INSTALLED BY BBEC PERSONNEL, IF NEEDED.
3. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
4. CT'S AND TEST SWITCH TO BE SUPPLIED AND INSTALLED BY BBEC.
5. ANY OVERHEAD SOURCE MAST TO BE INSTALLED AS PER NEC GUIDELINES.
6. MEMBER CONDUCTORS TO BE MARKED AS SHOWN IN C.T. CAN AND ON EXPOSED TAILS.



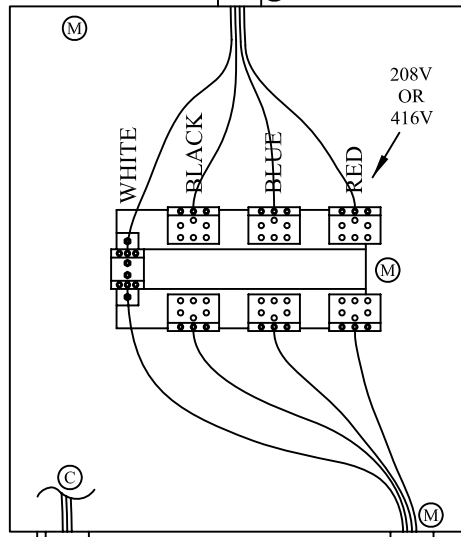
IF OVERHEAD SOURCE

PIPE STRAPS NOT MORE THAN 5 FT. APART AND NOT LESS THAN 3FT. APART

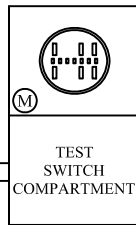


OR

6 FT. MAXIMUM



1" MIN. SET BACK CONNECTED BY 1 1/2" DIA. CONDUIT



5 FT. PREFERRED

3" OR 4" RIGID STEEL OR SCHEDULE 80 PVC ONLY

IF UNDERGROUND SOURCE

PIPE STRAPS AND SPACERS

SIZED PER NEC

GROUNDING AS PER NEC

SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

CURRENT TRANSFORMER (CT) METERING – BUILDING

JAN 2013

BBEC

3-PHASE METERING

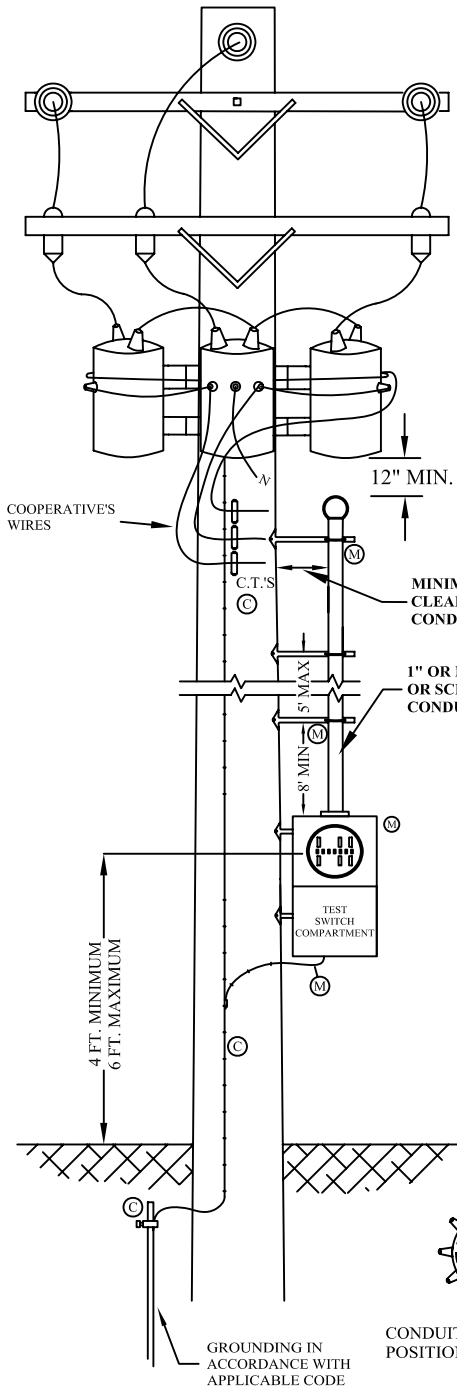
120/240, 120/208, 240/480,
277/480 VOLTS

MT3-CT-B

APPROXIMATE CONDUIT LENGTHS

TRANSFORMER POLE
35' - 11' MAST
40' - 16' MAST
45' - 20.5' MAST

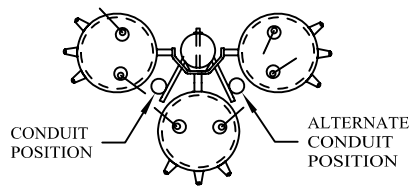
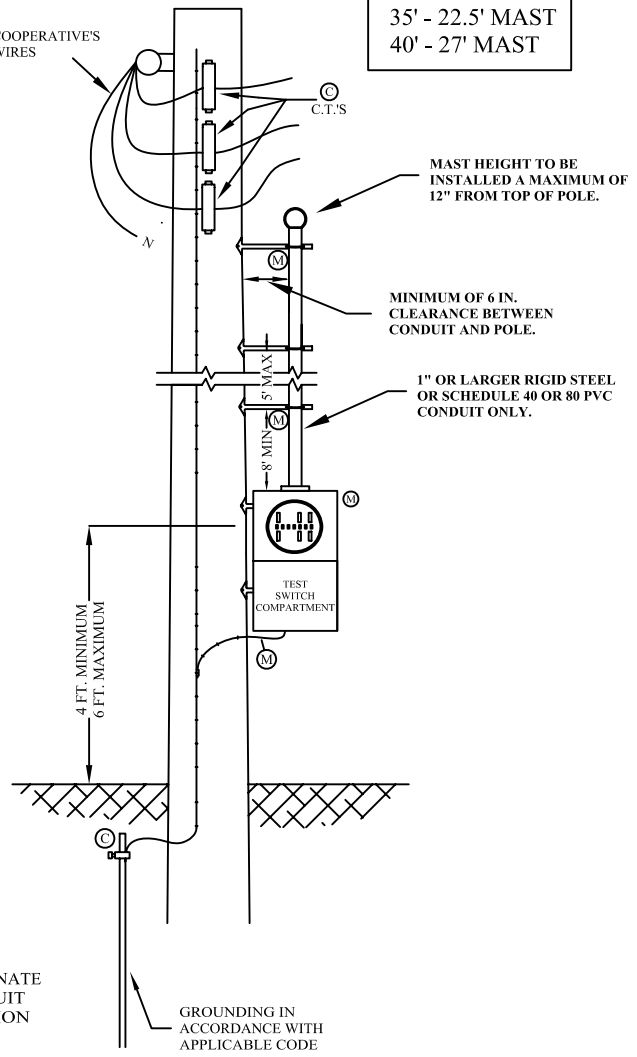
- NOTES:
- RESPONSIBILITY:
 - Ⓢ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
 - METERING TO BE INSTALLED AFTER THE INSTALLATION OF BBEC EQUIPMENT AS CONDUIT LENGTHS ARE DEPENDENT ON POLE SIZE AND EQUIPMENT ON POLE.
 - ALL METER MAST LENGTHS GIVEN ARE APPROXIMATE AND SUBJECT TO VARIATION BETWEEN INSTALLATIONS.
 - TEST SWITCH TO BE SUPPLIED AND INSTALLED BY BBEC.
 - MEMBER SECONDARY CONDUITS TO BE MOUNTED TO BACK SIDE OF METER BASE STAND OFF BRACKETS.



MEMBER TO PROVIDE MINIMUM 6' TAILS FROM MEMBER'S SECONDARY RISER FOR CONNECTION TO COOPERATIVE'S WIRES. MEMBER'S WIRES ARE TO BE SIZED PER NEC AND BE UV RESISTANT.

APPROXIMATE CONDUIT LENGTHS

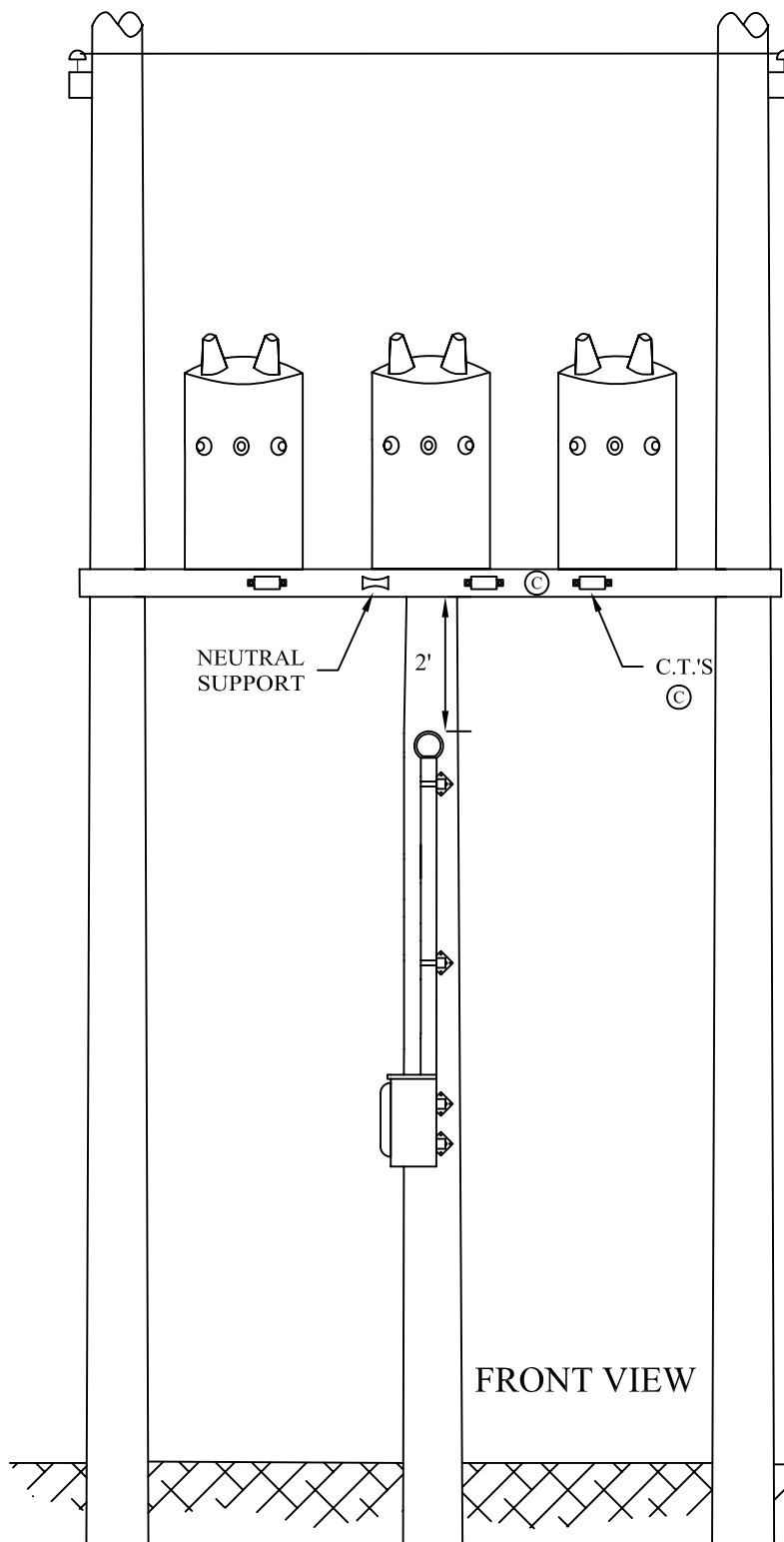
METER POLE
30' - 18' MAST
35' - 22.5' MAST
40' - 27' MAST



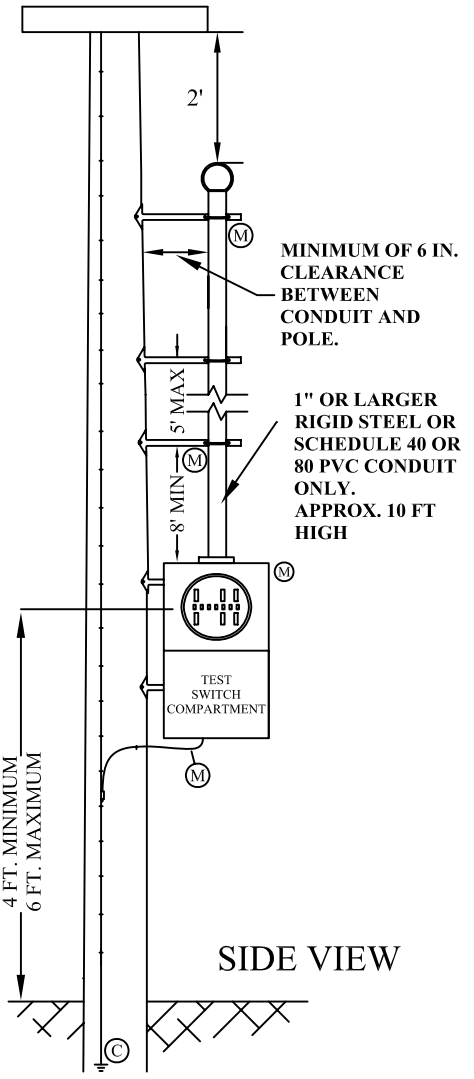
SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

CURRENT TRANSFORMER (C.T.)
METERING - POLE

JAN 2013	3-PHASE METERING	MT3-CT-P
BBEC	120/240, 120/208, 240/480	



- NOTES:
- RESPONSIBILITY:
 (C) COOPERATIVE
 (M) MEMBER
 - METERING TO BE INSTALLED AFTER THE INSTALLATION OF B.B.E.C. EQUIPMENT AS CONDUIT LENGTHS ARE DEPENDENT ON POLE SIZE AND EQUIPMENT ON POLE.
 - ALL METER MAST LENGTHS GIVEN ARE APPROXIMATE AND SUBJECT TO VARIATION BETWEEN INSTALLATIONS.
 - TEST SWITCH TO BE SUPPLIED AND INSTALLED BY BBEC.
 - MEMBER SECONDARY TAILS TO BE AT LEAST 15 FT. LONG.
 - MEMBER CONDUITS TO BE ATTACHED TO BACK SIDE OF METER STANDOFFS.



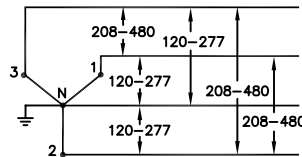
SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

CURRENT TRANSFORMER (C.T.) METERING – PLATFORM

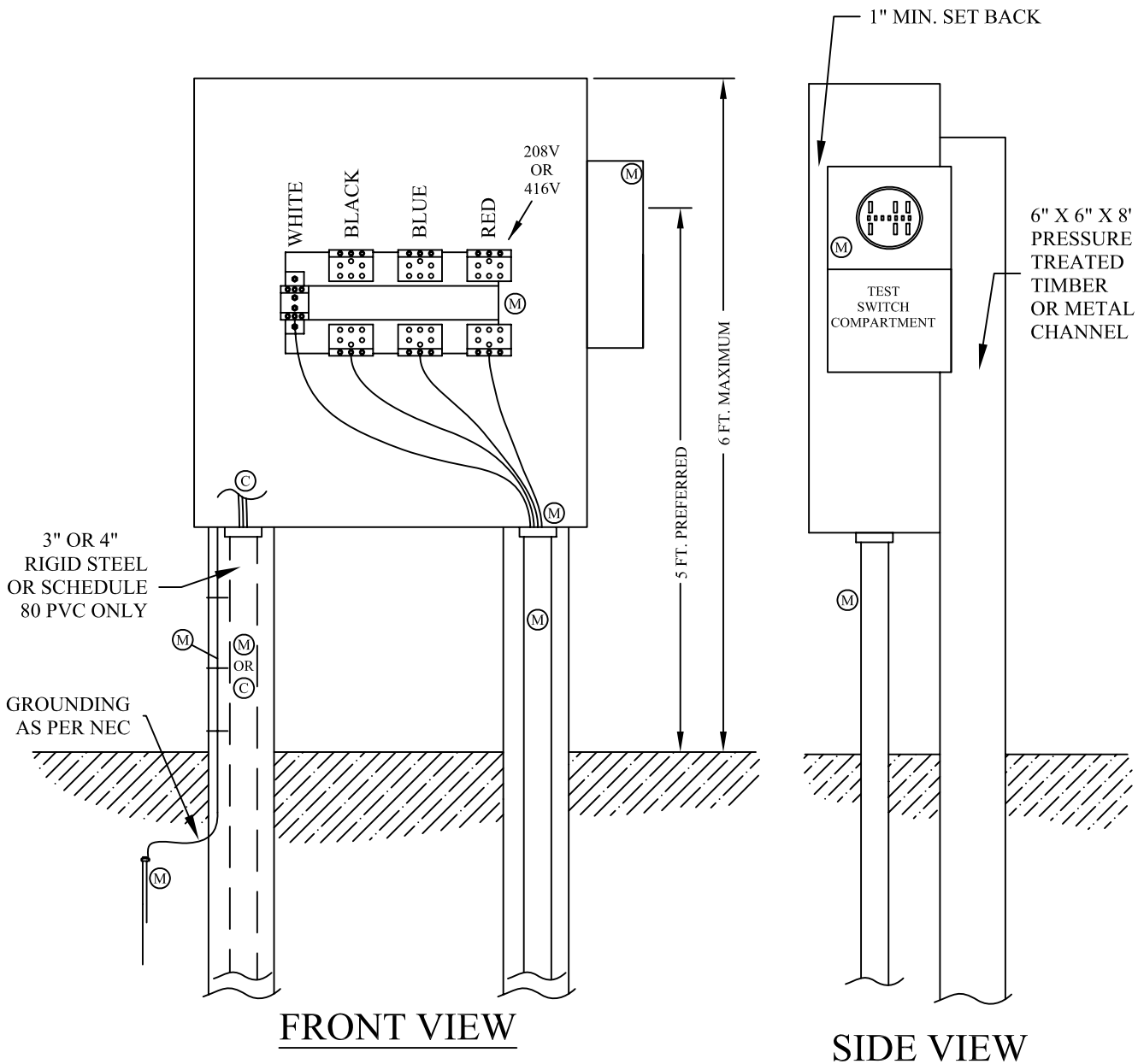
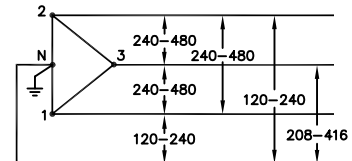
JAN 2013	3-PHASE METERING 240/480	MT3-CT-PL
BBEC		

NOTES:

1. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
2. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
3. CT'S AND TEST SWITCH TO BE SUPPLIED AND INSTALLED BY BBEC.
4. METER/C.T. CAN MUST BE LOCATED IN A MUTUALLY AGREEABLE LOCATION.



OR



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES AND APPROVED LOCATIONS.

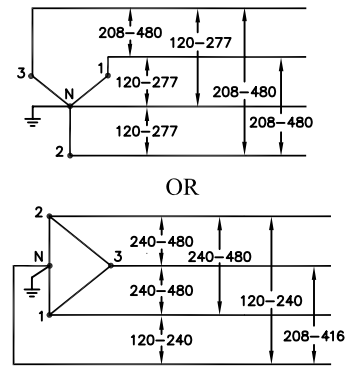
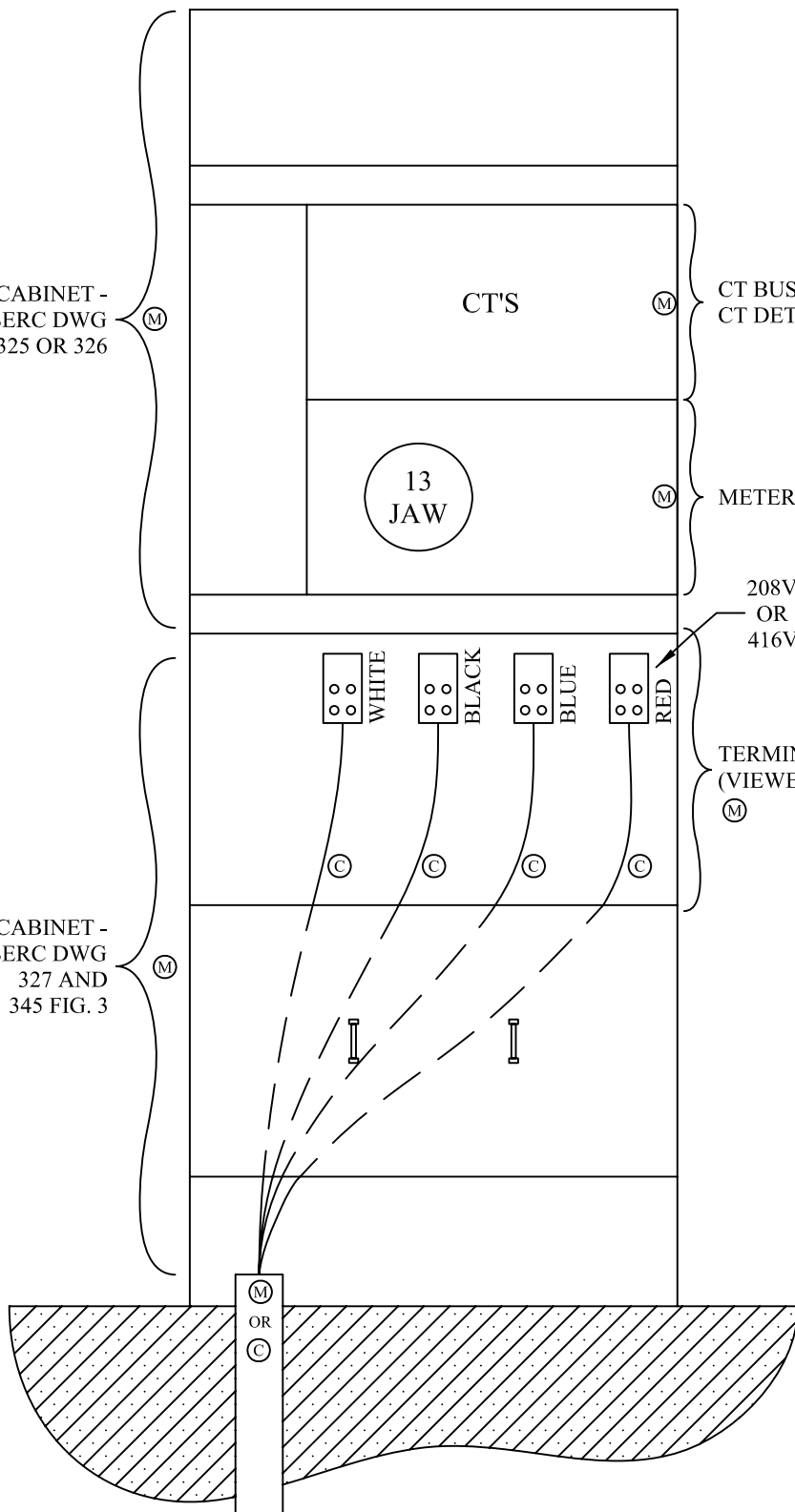
CURRENT TRANSFORMER (CT)
 METERING – REMOTE

JAN 2013	3-PHASE METERING	
BBEC	120/240, 120/208, 240/480, 277/480 VOLTS	MT3-CT-R

OUTDOOR/RAINTIGHT CABINET
EUSERC DWG 354

CABINET -
EUSERC DWG
325 OR 326

CABINET -
EUSERC DWG
327 AND
345 FIG. 3



CT BUS DETAILS - EUSERC DWG 320 OR 322
CT DETAILS - EUSERC DWG 330

METERING - EUSERC DWG 332

208V
OR
416V

TERMINATIONS - EUSERC DWG 347
(VIEWED WITH DOOR OFF)

NOTES:

1. RESPONSIBILITY:
 (C) COOPERATIVE (BBEC)
 (M) MEMBER
2. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
3. MEMBER CONDUCTORS TO BE MARKED AS SHOWN.
4. BBEC SHALL INSTALL TEST SWITCH, CT'S, METER AND SECONDARY WIRE TO SOURCE SIDE TERMINATIONS.
5. MEMBER RESPONSIBLE FOR CONDUIT ENTRANCE TO SWITCHGEAR. COORDINATE WITH BBEC ENGINEER FOR SIZE AND QUANTITY.
6. CABINET TO BE LOCKABLE AND SECURED WITH BBEC LOCK.

SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

CURRENT TRANSFORMER (CT)
METERING - SWITCHGEAR WITH METER

JAN 2013

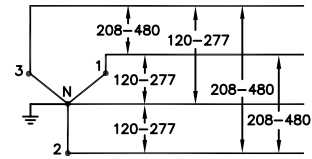
BBEC

3-PHASE METERING
120/240, 240/480, 120/208,
277/480

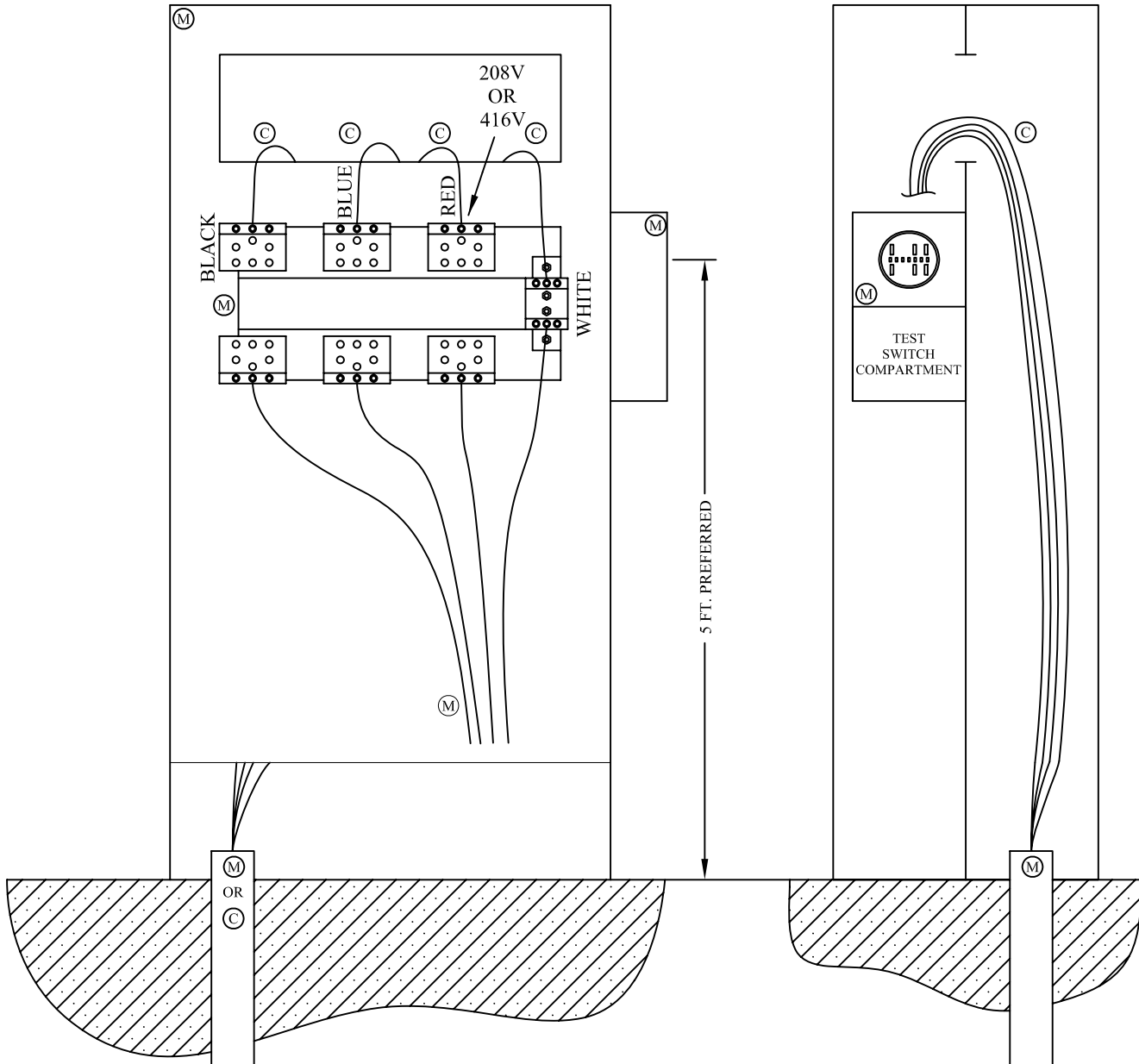
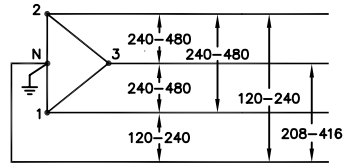
MT3-CT-S1

NOTES:

1. RESPONSIBILITY:
 - Ⓢ COOPERATIVE (BBEC)
 - Ⓜ MEMBER
2. DEPENDENT ON YOUR SERVICE INSTALLATION, A MAIN BREAKER MAY BE REQUIRED. CONTACT AN ELECTRICIAN OR STATE L & I PRIOR TO INSTALLING YOUR METERING EQUIPMENT.
3. MEMBER CONDUCTORS TO BE MARKED AS SHOWN.
4. BBEC SHALL INSTALL TEST SWITCH, CT'S, METER AND SECONDARY WIRE TO SOURCE SIDE TERMINATIONS.
5. MEMBER RESPONSIBLE FOR CONDUIT ENTRANCE TO PAD MOUNTED METERING TRANSFORMER CABINET. COORDINATE WITH BBEC ENGINEER FOR SIZE AND QUANTITY.
6. CABINET TO BE LOCKABLE AND SECURED WITH BBEC LOCK.



OR



SEE SERVICE AND METER REQUIREMENTS FOR APPROVED METER BASES.

CURRENT TRANSFORMER (CT) METERING
 – PAD MOUNTED WITH METER BASE

JAN 2013	3-PHASE METERING	MT3-CT-S2
BBEC	120/240, 240/480, 120/208, 277/480	

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