

# Central Electric Cooperative Wiring Specifications

## 1. INTRODUCTION

- 1.1** These rules for service wiring and equipment installations made on premises of Members served by Central Electric Cooperative are issued for the guidance of Members, contractors, architects and engineers. They require that electrical installations be designed and installed so as to protect the interests of Members, Cooperative and the public. They are based on standards proven by experience and aim to provide safe and satisfactory service.
- 1.2** These rules are **not all-inclusive** but merely cover matters which concern both Member and the Cooperative, and which facilitate the supplying of electricity. Since they are not all-inclusive specifications, compliance with them is no assurance that a wiring installation is adequate for full and most convenient use of electric service.
- 1.3** Issuance of these rules does not release the Member from the normal obligations of maintaining his electric wiring and equipment in a safe condition, nor does the Cooperative in any way accept responsibility for Member's wiring and equipment.
- 1.4** The information contained herein will be revised and amended from time to time, to keep pace with development and the National Electrical Code. Additional copies and any revisions may be secured at the Cooperative office. Questions as to their application or interpretation should be referred to the Cooperative and we will give all reasonable assistance.

## 2. GENERAL

- 2.1 APPLICATION FOR SERVICE** - Central Electric should be advised as far in advance as possible of the date service is desired. All forms and fees must be received before service will be supplied. Application for an electrical inspection is not considered to be an application for service.

The member must consult the Cooperative for information concerning the point of attachment of service facilities to the Member's building, the location of the meter, characteristics of the service as well as other pertinent matters, and at this time the member must obtain a "service order number". This service order number will be given to the contractor and electrical inspector to coordinate **all** work with the Cooperative.

- 2.2 ALTERATIONS AND ADDITIONS** - Each service drop, transformer, meter and other equipment supplied by the Cooperative has a limited capacity.

Member load additions such as electric heat, air conditioners, motors, air compressors, electric water heater, electric welding equipment, communications

transmitters, and other large loads may overload the Cooperative's facilities. Therefore, the Cooperative should be advised so that facilities of proper capacity may be provided to assure satisfactory operation of the Member's equipment and to protect both the member's and Cooperative's equipment against damage. Electricity must not be introduced into any additional wiring or equipment until such new work is inspected and approved as provided for herein, and it is determined that the Cooperative's facilities are adequate.

**2.3 LINE EXTENSIONS** - The cooperative will be pleased to discuss the terms and conditions of extending its facilities to supply service to the Members located beyond reach of existing distribution system.

**2.4 PROVISIONAL SERVICE** - Due to the temporary nature and uncertainty of certain types of service (such as, but not limited to, commercial construction sites, concrete batch plants, coal stripping pit pumps and oil wells) the provisional service is offered to its members provided they meet the specific requirements of the Cooperative.

**2.5 REQUIREMENTS OF A SAFE INSTALLATION** - It is necessary for the protection of Members that all wiring and equipment on their premises be installed and maintained in a safe manner. Compliance with the requirements of the National Electrical Code will be considered as evidence of a safe installation. The Cooperative will act within its power to ensure that the electric it provides for use by its Members is used safely without causing a hazard to a member of the general public. The Cooperative encourages electrical inspectors and contractors who become aware of wiring circumstances that are a threat to the Member or the public to report the same to the Cooperative.

**2.6 REQUIREMENTS FOR ELECTRICAL INSPECTION** - The Cooperative will supply service to the Member's installations only when all requirements contained herein have been met and the Cooperative has been given assurance of safe installation by a certificate of approval issued by a Municipality approved inspection agency (per the Uniform Construction Code) that must include a service order number obtained by the Member from the Cooperative.

**2.6.1 INSPECTION OF MOBILE HOME SERVICE**

- a. An inspection will be required for meter pole services that have been moved from another location.
- b. Mobile homes must be wired to meter pole at the time of permanent inspection.
- c. Thirty (30) day temporary service inspections will be accepted when the mobile home is not available to be connected at the same time meter pole is inspected. However, a permanent inspection will be required within thirty (30) days of temporary inspection.

- d. A service re-inspection will be required for mobile homes moving into an existing service.
  - 1. Under this section, old services, which are not safe or require increased capacity due to additional electrical requirements, must be upgraded to meet the current specifications of the Cooperative and the National Electric Code.

**2.7 RIGHT TO REFUSE SERVICE** - The Cooperative reserves the right to refuse or disconnect service to any member when in their judgment the members wiring, or service equipment is considered unsafe or not installed in accordance with Cooperative specifications. Service will be reconnected after the unsafe condition has been corrected and inspected by a Municipality approved inspection agency (per the Uniform Construction Code).

**2.8 SERVICE ENTRANCE** - The Member shall furnish meter socket, service entrance equipment and branch wiring. The Member is responsible for providing service entrance equipment with over current protective devices with short circuit current ratings in no case less that 10,000 amperes, RMS symmetrical.

**2.9 CONNECTION TO THE COOPERATIVE'S FACILITIES**

**2.9.1 RESIDENTIAL MEMBERS** - The Cooperative will make the physical connection between the Cooperative's service and the Member's service entrance conductors.

**2.9.2 ATTACHMENTS ON THE COOPERATIVES'S POLES** - No other equipment shall be attached to the Cooperative's poles except under special arrangement with the Cooperative.

**2.10 METERS** - All necessary meters will be furnished and installed by the Cooperative.

**2.10.1 AMR (Automated Meter Reading)**- The Cooperative is in the process of converting from a member read metering system to an automated system utilizing a module to report the Kilowatt-hour usage. There are two types of modules used, one interfaces to the member's phone line for retrieval of Kilowatt-hour consumption history to the Cooperative's billing computer. All calls will be made automatically to the Cooperative's toll free 800 number. The second type of module reports information through the electric lines to a unit located in the substation, which then reports those readings to the Cooperative's billing computer. All new installations will utilize the second type of module.

**2.11 METER BASES** - Self-contained meter sockets will be used for single-phase and three-phase service applications not exceeding 320 amps and service voltages not exceeding 600 volts. (Services exceeding 320 amps will be transformer rated, installed by the Cooperative.)

- a. All sockets will be ringless type construction and be a minimum of NEMA type 3R design intended for outdoor use to provide protection against wind blown dust, rain or snow. Enclosure material will be of galvanized steel construction 16-gauge and finished with medium gray colored enamel paint over a rust inhibitor coating. 14-gauge aluminum is also acceptable.
- b. All single-phase socket lugs will be of bypass horn-type construction, or a manual handle type bypass on Class 320 amp, for use by the Cooperative during meter maintenance.
- c. Individual meter sockets shall be rated between 100 and 320 amps. Overhead sockets will require a hub opening at the top for overhead entry. Overhead service must utilize this hub opening.
- d. The neutral connection shall be bonded to the meter socket enclosure. Also, an equipment ground stud provision is required in the load connection part of each socket.
- e. **Sockets used in underground applications** will have knockouts for 3" conduit and will contain side mounted bottom feed lugs for use by the Cooperative during meter maintenance. Underground socket lugs must accept a minimum wire size of 4/0 copper or aluminum.
- f. All meter sockets will accept the use of Mylar plastic disconnect sleeves being applied over the meter jaws without cutting or trimming. 100-200 amp sockets jaw assemblies shall be compatible with Class 200 amp rated meters.
- g. Individual meter socket positions shall have separately accessible cover plates, which are removable, to permit the replacement of the socket type meter without disturbing the adjacent meters. All socket assemblies must accept wire hasp type plastic sealing devices, which will only be installed or removed by the cooperative.

**2.11.1 SOCKETS FURNISHED BY THE COOPERATIVE-** All Transformer rated meter sockets and sockets that are multi-phase. Services requiring 480 volt 3 wire delta and 480/240-volt single phase will be transformer rated and also be furnished and installed by the Cooperative. The 3-gang socket for use in interruptible heat accounts is furnished by the cooperative and installed by the contractor.

**2.11.2 SOCKETS FURNISHED BY THE CONTRACTOR/MEMBER** –All single-phase and multi-gang meter single-phase sockets, and factory assembled multi-meter centers, mobile home pedestals and other specialty sockets will be provided by the contractor and serviced by the owner/contractor.

## **2.12 METERING TRANSFORMER INSTALLATION**

**2.12.1** All metering current and potential transformers and related metering installation equipment will be furnished by the Cooperative and installed by the Member. The Cooperative will make transformer metering equipment connections. Consult the Cooperative for details.

**2.12.2** Metering transformers may be installed in Member-owned vaults, cubicles, or on switchboards, when prior arrangements are made with the Cooperative.

## **2.13 METER LOCATION**

**2.13.1** Members must provide a meter base and a meter location suitable to the Cooperative, installed on the **exterior** of the building with adequate space necessary for meter and meter base installation, with 30" clear space in front, and **free access** so that the meter may be read and serviced **at any time by the Cooperative.**

**2.13.2** For residential installations, meter locations shall be on the **exterior** of the building or member owned meter poles.

**2.13.3** For commercial and industrial service, meters will be installed on the **exterior** of buildings. Transformer rated metering may be installed by the Cooperative on permanently installed poles.

**2.13.4** The Cooperative-owned poles may be used for CATV electrical service equipment. Contact the Cooperative for meter location approval.

**2.13.5** The Cooperative **will not** accept the following as meter locations:

- a. Locations that are inside a building for any reason, under a deck, or inside a fenced area for any type of animal.
- b. Locations which are in close proximity to moving objects, such as belts, shafting, engines, motors, machinery, or vehicles, where future construction may limit access indoors, breezeways, fenced-in areas.
- c. Wooden partitions or stairways, or in any locations subject to excessive vibration, or where meters may be subject to damage.
- d. Locations which are dangerous to meter readers or testers, or where conditions would prevent a serviceman from standing in front of the meter to test or read.
- e. Locations occasionally subject to high water. In such flood areas, a meter location above high water level must be provided.
- f. On Cooperative-owned poles (except C.T. metering and joint utility).

## **2.14 GROUP METER INSTALLATIONS**

- 2.14.1** In general, in buildings where more than one meter is required, provisions shall be made for grouping meters at one place accessible to all Members. Each meter shall be permanently identified with its corresponding apartment, office or lot number. In buildings where conditions make it undesirable to group meters, separate installations can be made, on approval of the Cooperative.
- 2.14.2** In large buildings, special conditions may make it desirable to group, on each floor or area, the meters for individual Members located on that floor or area.
- 2.14.3** Detailed plans of such installations shall be submitted to the Cooperative for approval before construction is started or equipment purchased.
- 2.14.4** Individual service switches on group installations shall have a distinctive marking showing which portion of the building they supply. Such marking shall be permanently made and so placed that it will be clearly visible.

## **2.15 SERVICE ENTRANCE SWITCHES OR BREAKERS -- Permanent Service**

- 2.15.1** Service entrance equipment (circuit breakers or fused switches) having a total capacity of not less than 100 amperes and meeting requirements of Section **2.8** shall be installed for each individual installation.
- 2.15.2** Where a Member's installation consists of only one branch circuit, the service equipment may be smaller, but not less than 30 ampere capacity, upon prior approval of the Cooperative. Two wire services will not be accepted.
- 2.15.3** For service entrance switches for mobile home see the National Electrical Code requirements for service equipment to mobile homes.

## **2.16 SERVICE ENTRANCE CONDUCTOR SIZES -- Permanent Services**

- 2.16.1** Service entrance conductors shall have not less than 100 amperes nominal capacity, except for installations having only one branch circuit, in which case they shall have not less than 30 amperes nominal capacity, upon prior approval of the Cooperative.
- 2.16.2** For installations other than residential, conductor capacity less than specified above may be provided with prior approval of the Cooperative, but shall have not less than 30 amperes nominal capacity.
- 2.16.3** For service entrance conductor sizes for mobile homes see the National Electrical Code requirements for service equipment to mobile homes.

## **2.17 GROUNDING OF SERVICE ENTRANCES**

**2.17.1** All service entrances with a neutral conductor shall be provided with a common equipment and neutral ground terminals. Service entrances which do not have a neutral conductor shall have an equipment ground only. All parts of service entrances such as conduits, metallic armor, cables, switch boxes, and junction boxes shall be suitably bonded together to insure continuity of the assembly to the ground wire. The grounding conductor may be solid or stranded, insulated or bare, with the carrying capacity and tensile strength of not less than No. 6 copper. It must run without splices or joints from a suitable connection in the service switch or breaker enclosure and be connected to an approved grounding electrode.

**2.17.2** An approved grounding electrode shall consist of any one of the following:

- a. A metal underground water pipe in direct contact with the earth for 10 feet or more (including any metal well casing effectively bonded to the pipe) and electrically continuous to the points of connection of the grounding electrode conductor and the bonding conductors. A metal underground water pipe grounding electrode shall be supplemented by additional grounding electrode of the type described in Paragraph b, c and d below or in Paragraph **2.17.3**.
- b. The metal frame of the building where effectively grounded.
- c. An electrode encased by at least 2 inches of concrete located within and near the bottom of a concrete foundation or footing that is in direct contact with the earth, consisting of at least 20 feet of one or more steel reinforcing bars or rods of not less than ½ inch diameter or consisting of at least 20 feet of bare solid copper conductor not smaller than No. 4 AWG.
- d. A ground ring encircling the building or structure, in direct contact with the earth at a depth below earth surface not less than 2 ½ feet, consisting of at least 20 feet of bare copper conductor not smaller than No. 2 AWG.

**2.17.3** Rod or Pipe Electrodes shall consist of two 8-foot pipes or rods driven to a depth of at least 8 feet and spaced at least 6 feet apart. Temporary service will require only one ground rod. The grounding conductor shall be continuous from the service breaker panel to each of the electrodes. If pipe is used, it shall be galvanized steel and not less than ¾" internal diameter. If a galvanized steel rod is used, it shall be at least 5/8" diameter, ½" diameter for non-ferrous metal. All grounding electrodes shall be interconnected so as to form a common ground and be connected to the interior metallic cold water piping system.

**2.17.5** The grounding conductor may be attached to the water piping system on either side of the water meter. In either case, the water meter shall be suitably bonded with a jumper. All parts of the water piping system which are likely to

become disconnected, such as valves and unions, between the water meter and the point of attachment of the grounding conductor shall be suitably bonded.

Ground wires must never be connected to gas or hot water lines.

**2.17.6** Install #6 copper grounding conductor for all services to approved ground clamp and rods 8' deep.

**2.18** **SEALS** - All members and all points of access to unmetered Member wiring will be sealed by the Cooperative. All cabinets, switch boxes, pull boxes and terminal boxes used inside or outside the building which contain unmetered wires, must be made sealable by the member before service will be supplied. All entrance conduit fittings used outside the building ahead of the meter must have non-removable covers. All such fittings used inside the building ahead of the meter if not of the non-removable cover type, must be drilled for sealing. The breaking of Cooperative seals by unauthorized persons, or tampering with meters, or with any wiring equipment ahead of the meter is prohibited.

**2.19** **ACCESS TO THE MEMBER'S PREMISES** - Members shall provide the Cooperative's employees free access to their premises at all reasonable hours for purposes necessary or proper, in connection with supplying service. The Cooperative's authorized agents who seek to enter upon the Member's premises will identify themselves by proper credentials furnished by the Cooperative for such purposes.

**2.20** **VAULTS** - Fiberglass transformer vaults and a contribution to the Cooperative to install such vaults are required when the Cooperative's line is underground. Where conditions warrant, the member must provide a concrete foundation.

**2.20.1** Vaults shall be so located as to be easily accessible by direct entry from outside the building, for the purpose of installations, maintenance and removal of the Cooperative's equipment.

**2.20.2** The Cooperative reserves the right to serve other Members from the Cooperative's equipment located in vaults on the Member's premises.

**2.21** **ANTENNAS** - Antennas for radio or television reception or transmission shall never be placed over or in locations that may cause accidental contact to the Cooperative's or member's lines. This includes the support by a member owned meter pole and conduit mast. All Cooperative primary lines are uninsulated and momentary contact could cause severe burns or death. Receiving antennas installed in close proximity to distribution lines or service drops may be subject to electrical interference.

**2.22** **SWIMMING POOLS** - The Cooperative prohibits the placing of a swimming pool under or over its existing distribution or service wires. A swimming pool may not be so located that any area is within ten (10) feet measured horizontally from the inside of any of its walls or from the outer limits of any facilities

associated with the pool. These limits are increased to twenty-five (25) feet when primary lines are involved.

**2.22.1** If a member desires to place a swimming pool in a prohibited area, upon the Member's request and payment of all costs involved, the Cooperative will relocate all necessary wiring whenever feasible. Consult the current National Electric Code for more detailed specifications.

**2.23** **STANDBY SERVICE** - Member's standby generating equipment shall be installed so that there cannot be any electrical inter-connection between the member's generator and the Cooperative's lines.

**2.23.1** When the means of stand-by generation is to be permanently or temporarily fixed to the Member's wiring, the Member will be required to install a means of disconnecting all ungrounded current-carrying conductors from the Cooperative's electrical system. This is normally accomplished by connecting the generator through a transfer switch.

**2.23.2** This will eliminate the possibility of feedback into the Cooperative's electrical system. The control device used for disconnecting the service when installed by the Member must be inspected by a Municipality approved electrical inspection agency (per Uniform Construction Code) prior to energizing the device. When Cooperative personnel install the pole top transfer switch, no inspection is needed.

**2.23.3** To insure the safety of the Cooperative personnel, the Cooperative may disconnect electrical service at any location that it finds stand-by generation equipment not properly installed. If service is disconnected, it shall remain disconnected until such time as the installation meets the requirements stated above.

### **3. TYPES OF SERVICE AVAILABLE**

**3.1** The Cooperative will provide 60 hertz alternating current. The type of service depends upon the location, character and size of the Member's load; therefore, it is necessary that the Member consult the Cooperative about the type of service that will be furnished before proceeding with the installation of wiring or the purchase of equipment. When the operation of Member's equipment can cause an unbalanced loading of facilities, the equipment must be connected so that the amount of unbalance is kept to a minimum.

**3.2** The following services are generally available from secondary voltage lines throughout the territory serviced by the Cooperative:

Type of Distribution System Available

Phase	Wires	Voltage	Overhead	Underground
1	3	480/240	Yes	Yes
1	3	120/240	Yes	Yes
3	4	120/240 Delta	Yes	Yes
3	4	120/208 Wye	Yes	Yes
3	4	277/480 Wye	Yes	Yes
3	3	480 Delta	Yes	Yes

Three-phase service is only available in certain areas of the Cooperative territory. The following services from higher voltage lines are available in certain sections of the territory served by the Cooperative.

Phase	Wires	Voltage
3	3	2400
3	4	2400/4160
3	3	7200
3	4	7200/12470
3	3	25000
3	3	34500

#### **4. SERVICE AT LESS THAN 600 VOLTS**

##### **4.1 COOPERATIVE SERVICE DROP**

**4.1.1** The Cooperative will furnish and install a permanent overhead service drop generally not to exceed 300 ft. in length from its overhead distribution system to the Member's facilities.

**4.1.2** Information must be obtained from the Cooperative regarding the service entrance location, meter location, and height of service entrance before any wiring has been installed on the member's premises.

**4.1.3** The Cooperative shall not be required to furnish or install more than one service for each building served, or more than one meter for each establishment, except under any of the following conditions, which must be referred to the Cooperative for prior and specific approval before proceeding with any work:

- a. Where required for types of service of different phase or voltage.
- b. Where required by law.
- c. Where required for fire pumps, emergency lighting or public safety regulations.

- d. Where a single property extends over an area which makes impractical to serve through one service drop.
- e. Where the Cooperative needs more than one service drop to supply the Member's load requirements.
- f. Where multi-occupancy buildings have no common locations for service equipment, which is accessible to all occupants.
- g. For different uses such as rate schedule.

**4.2 OVERHEAD SERVICE**

**4.2.1** Overhead service entrances must terminate on a pole, structure or exterior of building with adequate mechanical strength to support the Cooperative's service drop at a point where the Cooperative's service drop can be readily connected through the use of a single set of wire attachments. Conduit masts must be a minimum of 2" diameter, rigid metal conduit. **See Figure 4, 5, 6, and 11.**

**4.2.2** Service entrances shall have at least twelve (12") inches clearance from any telephone or signal wires.

**4.2.3** The service entrance shall be so located that the Cooperative's service drop will not cross over:

- a. Swimming pool and an area extending 10' horizontally from the inside of any of its walls or from the outer limits of any facilities associated with the pool. Refer to section on swimming pools. **See 2.22.**
- b. Observation stands, towers or platforms.

**4.2.4** Overhead service entrances should terminate at a point between 15 and 25 feet above ground. The point at which the overhead service entrance is connected to the Cooperative's service drop must be of sufficient height to allow a minimum clearance at any point between the building and the Cooperative's distribution system, as follows:

- a. Overhead railroad tracks.....27 feet
- b. Crossing or along street in urban districts, crossing roads in rural districts, public parking lots, and areas subject to truck traffic.....18 feet
- c. Over residential driveways and areas accessible to pedestrians only.....12 feet

**4.2.5** Where the Member's property is not of sufficient height to provide this clearance, a suitable electrical conduit mast for attaching the Cooperative's service drop must be provided according to National Electrical Code and the Cooperative's specifications. **See Figure 5**

**4.2.6** When desirable and upon approval by the Cooperative, service may be located on a Members pole. A round pressure treated pole of sufficient height shall be provided by the member or purchased from the Cooperative. The pole shall have a setting depth of 2 feet plus 10 percent of total pole length but not less than 5 feet and shall not be smaller than Class 7. **When the meter is located on a Member's pole, a fused disconnect or breaker panel will be required on the pole underneath the meter.**

**4.2.7** Where multiple services are required for farm use, a center meter pole may be used for obtaining service, in which case a disconnect will be required on the pole underneath the meter. This will enable the Member to work on his own wiring without the need of the Cooperative for disconnection. It will also provide the member a method for disconnecting his equipment in the case of any emergency. A transfer switch may be used for the disconnect switch. All dwellings must be provided a minimum service of 100 amps from the center meter pole. **See Figure 6.**

### **4.3 UNDERGROUND SERVICE**

**4.3.1** Residential underground service lateral conductors will be installed and maintained by the Cooperative for an installation charge. Notification of the Pennsylvania One Call System is the member's responsibility. The member is responsible (at his own cost) for the opening and closing of a lateral trench, at a depth of 30 to 36 inches; including the installation of 3" Schedule 40 PVC conduit in the trench, with a 3"diameter, 36" sweep, and 3" Schedule 80 PVC conduit into meter base (gluing all joints except the last joint and 36" sweep at the pole end which will be completed by the Cooperative). Installed within this conduit will be a 1/2" or larger rope for the purpose of pulling in the service lateral conductors by the Cooperative. Underground cable caution tape must be installed 12" above the conduit. The member will also furnish and install a minimum 200 amp 3-wire underground meter base according to Cooperative specifications **See 2.11.e.** and service entrance. The Cooperative will install the service conductors, conduit riser at the pole and complete the terminations at the transformer end. The member will backfill the trench except the last 10-15 feet at the pole end until after cable installation, using clean fill, free of stones and other sharp objects, restoring the surface to original condition. **See Drawing Figure 7.**

**4.3.2** Members desiring underground service shall contact the Cooperative to obtain the cost and other information relative to this type of service.

**4.3.3** The member shall, if requested, provide a safe suitable location for transformers, switches and associated equipment necessary for the Cooperative to provide adequate and safe service.

#### **4.4 TEMPORARY SERVICE FOR CONSTRUCTION**

**4.4.1** The installation of service facilities for construction projects and similar purposes during temporary periods (**1 year maximum**) shall be made in the manner prescribed for other entrances to the extent conditions will permit and must conform to the current National Electric Code and all Cooperative policies. Should a building not be available to mount a permanent service, the member shall provide a Cooperative approved structure that will support the service feeder and service entrance facilities, this structure should be located so the service drop or underground lateral may be transferred to the permanent structure.

**4.4.2** Overhead temporary structures may include, but not limited to, round treated pole: 6 inch X 6 inch wood timber; or three continuous length wood planks 2 inches by 6 inches nailed together. All overhead temporary structures will be supported in a trench of a minimum depth of 40" or equal to 2' plus 10 percent of total post length, backfilled and compacted. For structures other than round pressure treated poles, wood braces will be installed to assure that the structure will support a span of #2 triplex up to 75 feet in length. For spans greater than 75 feet, the member will supply a similar mid-span support structure, the Cooperative reserves the right to refuse connection to any structure that it determines unsuitable or of insufficient strength or height. **See Figure 8.**

**4.4.3** Should the Cooperative service drop cross a public roadway, a round pressure treated pole must be used as a support for the service drop. When a site survey has determined that the Cooperative's permanent service drop, for whatever reason, requires an intermediate lift pole, then with the permission of the Cooperative, the member may utilize this pole for temporary service facilities.

**4.4.5** For an underground temporary structure from a pad mount transformer, the support post should consist of a 4" X 4" timber or section of round pole. Post setting depth is 30" minimum with the meter base mounted no lower than 36". It will be the member's responsibility to furnish and install conduit, service conductors and equipment. The Cooperative will make the connection at the transformer. **See Figure 9** For a temporary service from an overhead transformer, regardless if the permanent service is underground, the temporary will be overhead. **See Figure 8.**

**4.4.6** Should a round treated pole be desired, it may be purchased from the Cooperative. The pole will be installed on the purchaser's premises after arrangements and payment for the pole have been completed with the Cooperative Engineering Department.

**4.4.7** All temporary service locations will be preapproved by the Cooperative.

- a. Member must execute the standard membership application.
- b. Entrance equipment shall be rated at a minimum of 30 amps, and the switch shall contain current limiting fuses - or in the case of circuit breakers, each breaker shall be rated at 10,000 amps r.m.s. and the service must include an approved ground-stake and a weatherproof receptacle with ground fault interruption.
- c. The member shall provide a locking device for the switch and cause the same to be left open for access by the Cooperative agency at the time of energizing the temporary service.
- d. Temporary services will be energized by the cooperative without need of a formal electrical inspection. Temporary service will be available for a period of one (1) year, after which it will be disconnected.

## **4.5 ELECTRIC THERMAL STORAGE**

**4.5.1** Electric Thermal Storage (ETS) dual services for residential heating will be provided when requested and all requirements of the Cooperative Schedule 10 have been met. A copy of this schedule is available from the Cooperative Engineering Department or Member Services Department.

**4.5.2** The Cooperative will furnish a three (3) position 200 amp base to be installed by the member. This base is acceptable for overhead or underground installations. The LEFT end position is to be wired to the existing service panel and the RIGHT end position is to be wired to the electric heating load panel. The center socket position is reserved for the Cooperative load control receiver. **See Figure 10.**

**4.5.3** An alternate method is the member providing a 200 amp meter socket and service entrance installation wired adjacent to the existing service panel, this service will be wired to the member installed dedicated heating service panel. The Cooperative will provide a 60 amp socket nipped to heating meter socket to be mounted by the member. The Cooperative will wire and install a load control receiver in this location.

## **4.6 SERVICE FOR MANUFACTURED HOMES**

**4.6.1** **DEFINITIONS** - Mobile homes, sectional or modular homes, or recreational vehicles. The terms mobile home, recreational vehicles and others used in the articles are the same as used in the National Electric Code - Articles 550 and 551.

**4.6.2** If a double wide has a nameplate indicating it is a mobile home, then it must be served as a mobile home. The nameplate is usually located in the proximity of the main service panel. Refer to the current National Electric Code for exceptions.

### **Code requirements and inspections:**

- a. Service equipment for mobile homes shall be located not more than 30 feet from the exterior wall of the mobile home it serves to meet National Electrical Code requirements.
- b. Inspection of service equipment and feeders by a Municipality approved inspection agency (per Uniform Construction Code) is required prior to connection.

#### **4.6.3**

Service to individually located manufactured homes will be supplied by one of the following methods:

- a. When a mobile home or sectional home is set up with the possibility or intention that it may be relocated at some future date, service may be supplied overhead to Member's pole on which metering and service equipment has been installed, or underground to Member's service pedestal with service equipment installed. This service equipment shall be adequate to serve the home's electrical load but not less than 100 amperes. It may also include one or more 50 ampere, 4 wire grounding type receptacles, if needed. Should service to a mobile home be underground, the minimum size of the meter base will be 200 Ampere according to Cooperative specifications **See 2.11.e**, regardless of the mobile home service size. **See Figure 11 – Overhead, or Figure 12 - Underground.**
- b. A manufactured home is considered a permanent dwelling when it meets all of the following conditions:
  - 1. It is supported on some type of permanent foundation with footers located below frost line.
  - 2. Inspection of concealed wiring should be requested at the factory with on site inspection of grounds, service equipment and service entrance conductors.

#### **4.6.4**

For such permanently located homes, service will be extended by either underground service lateral or, when adequate mechanical support can be assured, by overhead service drop. It shall be the Member's responsibility to provide adequate support for the Cooperative's service drop conductors.

#### **4.6.5**

Mobile Home Parks with individually metered services for each lot will be supplied when park owner provides service installations as discussed above (**See Figures 11 and 12**) or factory assembled pedestals with a buss bar capable of accommodating 4/0 aluminum conductor. Note requirements for underground service in Section **4.3**.

- a. Service disconnecting equipment, other than factory assembled service pedestals, located outside the home shall have not less than 100-amperes nominal capacity and shall include means to connect a permanently

installed feeder of 100 ampere capacity. It may also include one or more 50 ampere, 3 pole, 4 wire grounding type receptacles.

- b. If service is overhead, facilities shall be grouped on a pole installed by park owner with a maximum of four meters at one location. (Consult the Cooperative to work out pole locations.) It is recommended that disconnecting equipment be located near the mobile home. The Member shall identify each meter of a group with its corresponding lot number.
- c. If service is underground, the Member furnishes individual meter support near mobile home. Meter support shall be installed so that it remains vertical and at proper height above grade. If made of wood, it shall be pressure creosoted or have other long life treatment, shall not be smaller than 6" x 6" and must have 40" in the ground.

**4.6.6** Service for recreational vehicle parks and campgrounds shall be through a single master meter. Resale of electric energy through park-owned meter for profit is prohibited. Individually metered service may be requested for isolated locations to accommodate recreational vehicles. Minimum 100 ampere, 120/240 volt 3-wire service.

## **4.7 SERVICE TO OIL WELLS**

**4.7.1** The Cooperative will provide electric service to any new or existing oil well providing they meet the requirements of a typical pole service. **A fused disconnect or circuit breaker is required on all oil well meter pole services. (See Overhead Mobile Home Service - Figure 11 or Center Meter Pole - Figure 6)**

**4.7.2** The following examples are typical hazards that would result in service disconnection.

- a. Triplex on ground.
- b. Deteriorated pole.
- c. Triplex neutral bugged onto ground wire to ground rod.
- d. Equipment ground not connected.
- e. Triplex out of disconnect instead of entrance cable.
- f. Triplex in trees without proper attachments.
- g. No conduit into ground on URD services.
- h. No ground rods at oil well service points.
- i. Service equipment in poor shape.
- j. Low clearances.

**4.7.3** If during routine meter readings, the Cooperative employee should notice conditions not meeting Cooperative standards, the Member will be notified of these violations. The Member will be expected to correct the violations within a

reasonable preset time period. Non-compliance would result in disconnection of service to your facility.

## **5. MISCELLANEOUS**

- 5.1** Electric welding equipment, radio and TV transmission sets, X-ray machines, air conditioning units, air compressors, and other equipment causing fluctuating or intermittent flow of large currents, or the operations of which is affected by slight voltage fluctuation, may require separate service entrances in order to function properly and to avoid interference with Member's other service or that of adjacent Members. In all such cases, the Member must obtain from the Cooperative information as to what service entrance facilities must be provided before equipment of this character is placed in operation. It will benefit the Member to obtain the information before construction is started.
- 5.1.2** Electric cooking units, clothes dryers, and other heating devices of more than 3 kw capacity must be wired for service at more than 150 volts. Any such device, with more than one element must have the elements balanced across the service voltage.
- 5.1.3** Electric water heater installations shall comply with any local or state codes.
- 5.1.4** Heating elements for residential water heaters shall not exceed 5,500 watts each, shall be for 200 volts or more, shall be thermostatically controlled, and shall be connected to prevent simultaneous operation. All water heaters shall be equipped with an American Standards Association approved pressure-temperature relief valve located in the top of the tank and a two-pole, manual reset over-temperature cutoff switch with 190 F. maximum cutoff of electric supply.
- 5.1.5** The addition of devices such as mentioned above may require changes in the Cooperative's facilities in order to provide satisfactory service; therefore, the Cooperative should be notified well in advance of the proposed additions so that proper capacity may be made available.