

# INTRODUCTION

This booklet is issued primarily as a convenient reference for customers, architects, engineers and contractors planning or constructing buildings or installing, repairing, or renewing apparatus or equipment to be connected to the Company's distribution system. Any future reference to the Company will imply Mississippi Power Company unless otherwise stated.

The practices discussed have been derived from research, experience and technical consideration. **As such they are supplementary to and do not intentionally conflict with the National Electrical Code or state and municipal laws and ordinances that may be in force within the cities, towns, or communities in which the Company furnishes electric service. If any conflict exists, the Code, law, or ordinance shall control.**

It is always necessary to refer to and comply with applicable codes, statutes, utility commission rules, and local ordinances. The information contained herein is general and does not include every detail or every lawful requirement.

The Company desires to serve its customers promptly and satisfactorily. It will endeavor to cooperate with contractors and customers to the fullest extent in completing service connections with as little delay and inconvenience as possible and will gladly give special attention to any particularly difficult situation confronting a customer.

The Company will be pleased to confer with those desiring information concerning rates, services, etc., upon request.

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## DEFINITIONS

**Ampere Rating** - The maximum allowable current that can safely pass through a device.

**Approved** - Acceptable to a qualified Mississippi Power Company employee.

**Class of Service** - The voltage rating and the number of phases for a particular service.

**Company** - Mississippi Power Company.

**Conduit** - A tubing or duct in which electric wires or cables are enclosed.

**Current Transformer (CT)** - A device which reduces the load current by a known ratio for metering purposes.

**CT Enclosure (Instrument Transformer Enclosure)** - A metal cabinet which houses instrument transformers.

**CT Socket (Instrument Transformer Rated Source)** - A meter socket that is used only with instrument transformers.

**Customer** - The corporation, municipality, governmental agency, association, partnership or individual using or planning to use electric service supplied by the Company or the architect, engineer, or electrical contractor acting as the customer's agent.

**Diversified Demand** - A company calculation to determine the maximum anticipated load (kw) based upon the customer's usage patterns and operation.

**Electric Service** - Electrical energy that is made available to the customer at the point of delivery.

**Energy** - The measure of work done. The electrical unit of energy is the kilowatt-hour, which is 1,000 watt-hours.

**Final Grade** - Ground level after all construction and landscaping procedures have been completed.

**Grounded Conductor** - A system or circuit conductor that is intentionally grounded.

**Grounding Conductor, Equipment** - The conductor used to connect non-current carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor and/or the grounding electrode conductor at the service equipment or at the source of a separately derived system.

**Grounding Electrode Conductor** - The conductor used to connect the grounding electrode to the equipment grounding conductor and/or to the grounding conductor of the circuit at the service equipment or at the source of a separately derived system.

**Instrument Transformer** - A current transformer or potential transformer used in metering.

**Instrument Transformer Enclosure (CT Enclosure)** - A metal cabinet which houses instrument transformers.

**Isolated Location** - Not readily accessible to persons unless special means for access are used.

**Listed Equipment**- Equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concerned with product evaluation. This organization maintains periodic inspection of material or devices and finds them suitable for use in a specified manner. i.e. Underwriters Laboratory (U.L.)

**Maximum Available Fault Current** - The maximum amount of current that can flow when a fault (short circuit) condition exists between a conductor and ground or between two or more conductors at a given location.

**Meter** - A device that measures the amount of power and/or energy delivered to a customer.

**Meter Socket** - A weatherproof receptacle used for mounting a socket type meter.

**National Electric Code (NEC)** - The National Electrical Code, ANSI/NFPA 70. The code which governs the installation of electric conductors and equipment within or on public or private buildings or other structures. At the time of this printing, the current revision of the code is the 1993 edition. Future revisions of the National Electrical Code may change the requirements of the code or the references contained herein.

**National Electrical Safety Code (NESC)** - The National Electrical Safety Code, ANSI C2-1993. The code which governs the installation, operation, and maintenance of electric supply and communication lines, equipment, and associated work practices employed by utilities. Future revisions of the National Electrical Safety Code may change the requirements of the code or the references contained herein.

**Neutral** - The grounded service which carries the unbalanced 60 hertz current from other conductors.

**Point of Delivery** - The point at which the customer's conductors are connected to the Company's conductors.

**Potential Transformer (PT)** - A device which reduces the service voltage by a known ratio for metering.

**Power (Demand)** - The average rate of energy used over a period of time. A 15 minute interval is used for billing purposes. The unit of measure for power is the Kilowatt (kW), which is 1000 watts.

**Qualified Employee** - A Mississippi Power Company employee familiar with company safety rules and regulations and the construction, application, and operation of the equipment involved.

**Raceway** - An enclosed channel designed expressly for holding wires, cables, or bus bars.

**Readily Accessible** - Capable of being reached quickly, for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc.

**Service** - The conductors and equipment for delivering energy from the electricity supply system to the wiring system of the premises served.

**Service Drop** - The overhead service conductors that extend from the Company's last pole or aerial support to and including the splices, if any, connecting the customer's service entrance conductors at the building or other structure.

**Service Entrance** - The customer's conductors, conduit, and other associated equipment which extends from the point of delivery to the service equipment.

**Service Entrance Capacity** - The maximum rated allowable current passing through the service equipment.

**Service Entrance Conductors: Overhead System** - The service conductors between the terminals of the service equipment and a point usually outside the building, clear of building walls, where they are joined by tap or splice to the service drop.

**Service Entrance Conductors: Underground System** - The service conductors between the terminals of the service equipment and the point of connection to the service lateral.

**Service Equipment** - The necessary equipment, usually consisting of a circuit breaker or switch and fuses, and their accessories located near the point of entrance of supply conductors to a building or other structure, and intended to be the main electrical supply disconnect.

**Service Lateral** - The underground service conductors between the Company's distribution system and the point of delivery including any risers at a pole or transformer.

**Special Permission** - The written consent of the Company.

**Weatherproof** - So constructed or protected that exposure to weather will not interfere with successful operation.

## GENERAL INFORMATION

### A. Alterations and Additions:

When the Company connects a customer's installations to its supply lines, arrangements are made for meters, transformers, and other equipment to fit the installations as it is at that time. For maximum safety and billing accuracy, it is essential that the customer or contractor give notice to the Company before making any changes which will significantly increase or decrease the electrical load, reduce conductor clearances, or enclose or restrict access to Company facilities.

## **B. Application For Service:**

The Company maintains local offices strategically placed throughout its service area as well as a company-wide customer service center. Information concerning original or added service should be directed to the Customer Service Center by calling 1-800-532-1502 or local offices.

The customer shall provide, free of expense to the Company, suitable locations and space for the transformer(s), meters, and other equipment owned by the Company which are necessary to supply service.

An application for service will be considered permission to cross the customer's property and install any equipment which may be necessary to provide electric service.

To avoid unnecessary delays, applications for service should be made as far in advance of required service date as possible. Specific instructions for locating the service address, will help to assure prompt service.

## **C. Availability and Classification of Service:**

The customer should consult the Company well in advance of the date that service is required in order to determine what type of service is available in a particular location. A qualified company employee will determine the voltage, phase, etc. of a particular service since the availability may vary between different locations.

The information contained in this booklet refers primarily to service requirements at secondary distribution voltages (under 600 volts) for light and power installations. Service requirements for installations requiring higher distribution voltages are subject to special negotiations between the customer and the Company.

The Company is available to advise customers concerning the use of electrical equipment or situations not covered in this book.

## **D. Number of Services and Meters:**

The Company shall connect only one service drop or service lateral to a building or structure for each class of service except as permitted by Section 230-2 of the National Electrical Code.

Only one watt-hour meter shall be installed per customer per class of service. An exception will be made if the characteristics of the customer load or billing rate require the Company to utilize multiple meters. Multiple meters will not be used for the customer's benefit.

On installations comprising more than six meters, a sealable main disconnect or main breaker, of a type acceptable to the Company, shall be provided as required by the National Electrical Code. The customer will always provide and maintain any main breakers or disconnects

## **E. Use of Service by the Customer:**

Compatibility between the Company's distribution system and the customer's wiring system is of utmost importance. Because of this the following operating procedures are recommended to the customer:

- To safeguard both the property of the customer and that of the Company, the customer is warned against overfusing either the main fuse or those on branch circuits by installing fuses or circuit breakers larger than approved by the National Electrical Code, or in any way making protective devices of any type inoperative.
- The customer's wiring and equipment should be maintained in the condition required by inspection authorities having jurisdiction. The customer should use equipment and service in such a manner as not to disturb the company's service to other customers.
- When designing a wiring system, the customer should balance the load connected across each phase of the system as nearly as practical.
- The customer's wiring and equipment is to be installed and maintained by the customer in the condition required by the NEC or governmental authorities having jurisdiction.
- Customer equipment must not introduce electric or magnetic interference on the Company's system.
- Control devices such as those used for lighting and motor control shall be of such design as to introduce a minimum of harmonic distortion or other disturbances into the Company's system. These are detailed on page 11.
- The customer shall not use electric energy from any other source while being supplied by the Company without written consent of the Company.
- Electric service supplied to a customer shall not be resold or shared with others. An establishment which supplies electricity purchased from the Company to its tenants without any specific energy charges will not be considered as sharing with others.

## **F. Temporary Service:**

Application for temporary service should be made well in advance of the required service date. To insure prompt service, the location of the temporary service should be plainly marked with the lot number and/or street address as shown on the service application.

## **G. Extensions:**

In order to avoid delay, persons desiring service beyond the existing electric distribution lines of the Company should consult with the Company for the conditions under which service may be provided, and make the necessary arrangements before wiring installations are started.

## **H. Motor Requirements:**

The following requirements and suggestions apply to motors connected to the secondary distribution systems of the Company:

- The National Electrical Code requires that all motors be equipped with suitable starting switches and have overload protection.
- The use of automatic time-delay circuit breakers for circuit protection in all cases is strongly recommended and where fuses are used they should be of the time-delay type. This time delay will, in many instances, prevent unnecessary shut-downs due to the tripping of an instantaneous type circuit breaker or blowing of ordinary short time fuses by large currents resulting from motor starting, temporary overloads or temporary low voltage conditions and ordinarily will provide adequate protection. All automatic controls using the time delay should be coordinated.
- In general, 120 volts single phase motors may be connected to a 2 wire, single phase service, provided the locked rotor current does not exceed 50 amperes. Motors in excess of 50 amperes may be connected to a 240 volt, 3 wire service, provided the locked rotor current does not exceed 150 amperes. Any applications of single phase motors exceeding these requirements are to be referred to the Company.
- All single phase motors should be connected for 240 volts whenever it is practical to do so in order to minimize voltage drop in the customer's wiring system and the supply system.
- Before any polyphase motors are installed it is advisable that the Company be consulted in order to determine the type and adequacy of the available service. Where three phase service has been secured, polyphase motors over 50 horsepower shall not be connected without utility starting equipment or other suitable technologies that limit starting current.

## **I. Power Factor Correction:**

It is important to maintain the power factor of any load as near unity as possible. The maintenance of a high power factor may result in the reduction of conductor losses and equipment capacity requirements as well as higher overall efficiency.

## **J. Capacitor Installation:**

In general, capacitors must be applied more carefully than most types of electrical equipment in order that satisfactory operation and maintenance will result. The customer should confer with the Company before any installations of this type of equipment are made.

## **K. Cogeneration:**

Improperly installed generation equipment can create serious hazards to Company personnel working on the distribution system as well as for other customers connected to the distribution system. The operation of improperly installed generators can also result in damage to customer's wiring, electrical equipment or the generator itself. To safeguard against these hazards, customer owned generators shall be installed as follows:

- Standby generators shall be installed in compliance with the National Electrical Code and local codes. **Customers utilizing emergency or standby generators shall provide an adequately sized double throw switch which will open all ungrounded conductors from the normal supply before connection is made to the emergency supply, and vice versa.** Power from a standby generator must never be supplied to another premise because of the danger created by back-feeding into the distribution system.
- Subject to special requirements the Company will allow customer operation of parallel generating facilities. Generators designed to run parallel with the Company's system require special protective devices and operation coordination. Cogeneration is not allowed unless the Company is consulted prior to the installation and operation of parallel generators. Please consult the Company for specific requirements. A written agreement must be executed before interconnection.
- The customer may install an uninterruptible power supply on his system. An automatic transfer switch must be provided by the customer to disconnect the normal supply in the event of a power outage.

## **L. Service Quality:**

The integrity of electric service is of utmost concern to the Company. Normal system operations and unavoidable system disturbance may, however, cause customers to experience problems with certain types of equipment, most notably computers. If the customer should experience equipment malfunctions caused by system disturbances, the Company stands ready to advise and assist the customer in resolving these problems. Please contact a qualified employee.

## **M. Liability for Service Interruption:**

The Company will, at all times, exert itself toward the goal of supplying as nearly constant service as is reasonably practicable. However the Company does not and cannot not guarantee the supply of electric energy will be free from temporary interruptions. Temporary interruptions of the Company's service shall not constitute a breach of the Company's service obligations.

The Company is not liable for any damage which the customer may sustain by reason of the failure or partial failure of the service, or failure or reversal of phases, or variation in service characteristics, whether caused by accident, variation in service characteristics, repairs or other causes; nor is the Company liable for damage that may be incurred by the use of any service wiring, connections, instruments, services or electrical appliances, installed by or for the customer; nor is the Company liable for damage that may be incurred due to the presence of the Company's property on customer's premises.

In the event of interruptions of service, the Company will restore the service as soon as reasonably practical. In the event conditions on the customer's premises cause an interruption, the Company will allow a reasonable time for those conditions to be corrected, but reserves the right to disconnect the service until the conditions are corrected to preserve the safety and reliability of the Company's system.

If the customer requires three phase service, the installation and maintenance of adequate relays with circuit breakers to protect against single phase conditions and phase reversal are advisable. Their installation and maintenance is the responsibility of the customer.

## **N. Overhead Services:**

To avoid unnecessary delays, the availability of types of service should be confirmed with the Company before construction begins.

The point of connection between the Company's service drop and the customer's wiring system should be located at a point convenient to both the Company and the customer. Normally, the point of connection for an overhead secondary service is at the drip loop where the service is attached to the customer's structure. To comply with the appropriate safety codes, the point of connection must provide service drop clearances from windows, doors, awning or other parts of the building not less than those required in the current NEC. However, the service drop point of attachment shall not exceed 30 feet above final ground level.

The service drop will be attached to the customer's building at the point of connection only. Multiple points of attachments such as the service drop being attached to a corner of the building and then running to the point of connection will not be allowed.

If the type of building will not permit these minimum clearances, some satisfactory form of service mast must be provided to obtain them. The recommended structure for this purpose is a galvanized service mast through the roof. This mast shall have minimum strength equal to that of 2 inch inside diameter rigid steel conduit and shall extend above the roof the distance required by the National Electrical Code to give adequate clearance for overhead service conductors. Where long service drops are required, a larger size conduit may be necessary. The service mast shall be sufficiently braced to support the service conductors and shall be located at a point on the building where the service conductors from the pole will not overhang the roof, except for the overhanging eaves. The service mast must be secured by retaining straps placed no further apart than 24 inches. A minimum of two straps is required. There are to be no joints in the conduit above the straps. The portion of the service drop passing over the roof, including overhanging eaves, shall not exceed four feet. The clearance between the service drop and roof shall not be less than 18 inches at any point.

Safe and adequate anchorage structures for the Company's service drop and/or connections are required of the customer and in no case will the Company be responsible for the conditions of any customer's buildings or structures to which service wires are attached or have been attached.

Where service wires are to be installed on the side of buildings which have stucco, hollow tile, stone, brick, brick veneer, plaster, or sheet metal walls, and where there is available no surface suitable for the attachment of service supports having a screw fastening (house knob), the customer will install a suitable anchorage bolt or spool rack. Where the load to be served is sufficiently large to require the use of overhead service conductors of No. 4/0 aluminum and larger, 5/8" galvanized bolts for spoolracks or 5/8" eye bolts are required. Where the service conductors are smaller than No. 4/0 aluminum, the bolts may be smaller than 5/8 inch but in no case smaller than 3/8 inch diameter. These bolts are to be spaced

to conform to the conductor spacing as specified by the Company and should extend through the wall and each be anchored on the inside surface with a substantial washer not less than 1/8 inch thick and two inches square.

To prevent moisture from entering the raceways of conduit for service entrance conductors or service entrance cable, it is advisable to terminate them on the outside building wall at a point approximately 6 inches above the point of attachment of the highest service drop wire. The individual service entrance conductors are to extend downward to the points where connections are made to the service drop wires to form a drip loop. Each conductor of the service entrance must extend not less than **TWO FEET** beyond the service head to allow adequate wire for the drip loop and connection.

## **O. Underground Services:**

The availability of underground service should be confirmed with the Company before construction begins.

### **Point of Service/ Location**

The point of connection between the Company's service lateral and the customer's service entrance conductors shall be determined by a qualified employee after consultation with the customer

Padmounted transformers shall normally be located a minimum of 10 feet from a building. Clearance can be reduced (consistent with the applicable Code) if approved by the Company and the local inspection authority. Padmounted transformer locations are to be readily accessible and free from obstructions. They shall also be located where adequate natural airflow occurs preventing excessive transformer heating. The Company will make a final determination of the locations adequacy. Locations are to be approved by the Company prior to construction.

In certain prescribed districts or streets in downtown areas where the Company maintains an underground distribution system, underground services are installed by the customer at the customer's expense from an underground connection point generally in a company-provided hand hole, man hole, or vault at or near the property line of the customer. The Company will extend its service conductors not more than five feet inside the property line to these junction points.

When an instrument transformer enclosure is used, the point of connection (demarcation) shall be in this enclosure.

Service laterals, conduits, and accessories shall be furnished and installed by the customer and shall remain the property of the customer. The final connection of customer service entrance conductors will be made at the transformer by the Company. Company metering shall be located at one level only, preferably at the ground floor or basement level.

Generally, if the commercial/industrial customer is served from a padmounted transformer which is dedicated to that customer only, the point of connection will be at the secondary terminals of the padmounted transformer. MPC will furnish secondary connectors and install conductors at the padmount provided the provisions concerning maximum number of conductors per phase on page 13 are made. Consult the Company for specific details.

Special company policies cover residential underground services. Please consult the Company for specific requirements. The Company will install, own, and maintain service lateral conductors to the service location on the outside wall of the residence. This point should be the closest point to the Company's distribution facilities.

Each socket and service equipment in a group must be plainly and permanently marked to designate the particular suites, offices, or apartments served.

### **Conduit/Conductors/Raceways**

All conduit and direct buried conductors shall be buried at a depth of not less than 30 inches below final grade.

Service voltage supplied from single phase pad-mounted transformers will be 120/240 volts.

Services from three phase padmounted transformers shall be either 120/208 volts or 277/480 volts as determined by the Company.

Metering equipment shall not be mounted in or on single phase, padmount transformers.

- Conduit must be securely fastened to the wall within 12 inches of the meter socket and 6 inches of final grade level. Conduit straps shall be fastened to walls with the same type fasteners as meter sockets.
- Inhibitor of the non-grit type must be applied to conductors when aluminum conductors are used.
- Safety dictates all meter positions shall be properly covered before the meter socket is energized.
- The service entrance conductors must be run in sealable metal raceways or the equivalent.

### **P. Customer Owned Sockets:**

Where the customer desires a particular meter socket alignment not provided by the Company, it becomes necessary for the customer to furnish these devices. If a customer chooses to use meter sockets not furnished by the Company, he shall notify the company well in advance of required service date and shall comply with the following specifications. The Company will make the final determination of a device's suitability

- Customer purchased equipment shall be Underwriter Laboratory (UL) listed. The label, symbol, or the identifying mark used by the testing laboratory shall be affixed to the unit.
- Each meter socket shall be rated not less than the rating of the service equipment when used on single family dwellings. Each meter socket position shall be rated not less than the ampacity of the service or feeder conductors connected to the load side of the socket where multi-position metering assemblies are used.
- Line side connectors of meter socket assemblies to be connected to Company Service laterals shall be of a type satisfactory to the Company and comparable to company specifications for

similar equipment. The main bus of assemblies connected shall be rated not less than 100 amperes multiplied by the number of meter positions but not more than 1000 amperes.

- Line side connectors shall be designed and listed (UL486B) for the conductors (size and number) utilized in the assembly. Recommended torque values for all connectors shall be clearly marked in the connector compartment. All conductor strands shall be contained beneath the connector pressure device (set screw, pad, etc.)
- All meter spade jaws shall be spring reinforced.
- Ring type sockets must be equipped with Company approved screw-type sealing rings.
- Connectors for more than one conductor and connectors used to connect aluminum conductors must be approved for the purpose. Inhibitor of the non-grit type must be used on all aluminum conductors. **The Company will not accept more than one conductor under one pressure device (set screw, pad, etc.)**
- Conductors carrying unmetered energy shall not be contained in the same compartment, conduit, or raceway with conductors carrying metered energy.
- Meter sockets installed outdoors must be weatherproof (NEMA Type 3R). They shall also be of galvanized steel or aluminum construction. A unit is considered to be outdoors unless it is installed within the confines of the main structure of the building and totally protected from the weather. Units installed in metering room attached to a building will be considered outside unless the metering room is connected to the main structure of the building and has the same roofing as the building and roof flashing is installed.
- Multi-position, customer owned, meter sockets shall be constructed so the line side wiring compartment is separate from compartments housing service equipment or meter sockets and is accessible without having to remove any meter(s). Each meter position's cover shall be removable without having to remove any other cover(s).
- The customer shall be responsible for all maintenance of meter sockets not furnished by the Company. The Company shall affix a disclaimer statement to each customer owned meter socket in a place conspicuous to both Company personnel and customer which reads as follows:

**NOTICE: This meter mounting device was not furnished by Mississippi Power Company and is not the property of Mississippi Power Company. Mississippi Power Company shall not be liable for any damage or injury caused by failure of this device or for repair or replacement of this device or any parts contained therein.**

The sole purpose of this disclaimer statement is to inform the customer and electrical contractor that Mississippi Power Company does not own this device and does not assume any liability for damages that might be caused by the device or any responsibility for maintenance for the unit. It does not in any way imply that the meter socket assembly is inferior or unsafe.

## **Q. Transformer Vaults:**

When the customer desires to be served from transformers in a customer owned transformer vault or room the customer shall consult the Company for requirements and specifications.

Meters should be readily accessible as defined on pages 6, 14 and 15.

## **R. Grounding:**

Grounding electrodes and conductors are to be sized in accordance with the National Electrical Code with the following exceptions. The minimum grounding electrode size shall be an 8 foot 5/8 inch galvanized ground rod. The minimum grounding conductor size shall be No. 4 copper. The grounding conductor shall be terminated on the neutral bus in the meter socket.

Temporary service poles shall be grounded using an 8 foot ground rod as per pages 31 & 33. **(Butt wrapped grounds are not permissible.)**

Transformer rated installations must have a separate grounding provision as shown on pages 55, 67, 77, & 79.

## **S. Tampering and Sealing:**

Unauthorized attempts to divert energy, tamper with metering equipment, or gain unauthorized access to Company electric facilities can be dangerous. Persons attempting these activities expose themselves to the risk of serious or fatal injury. These activities can also lead to fires or other property damage.

Unauthorized removal, tampering or damaging a meter or meter enclosure, breaking the seal, or the use of any method or device which permits the flow of unmetered or unauthorized electricity into a premise is a criminal act. Violators are subject to prosecution under state and local laws.

Any damage caused by tampering with company property will be paid for by those tampering with the metering equipment.

When a customer needs a seal removed in order to inspect his system, make repairs or make modifications, he must call the Company so that company personnel can be dispatched to remove the seal. When the work is complete and the Company has received notice from the inspecting authority, if needed, the Company will again dispatch personnel to resecure the installation.