AEP: America's Energy Partner®

Guide for

Electric Service

and

Meter Installations

September 1, 2004

Preface

This booklet is not intended to conflict with the National Electrical Safety Code, the National Electrical Code, or such state and local laws or ordinances as may be in force in the Company Service Area.

The following electric service guides are the Company requirements at the date of publication and are subject to change. American Electric Power Company personnel should be contacted for the latest requirements in effect.

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SECTION 1
INTRODUCTION

This informational booklet is issued by American Electric Power Company for the guidance of Customers, Engineers, Architects, Contractors and other interested parties planning electrical installations for residential buildings and small commercial establishments. The information and recommendations set forth herein are, in general, sufficient to answer questions concerning a majority of the installations within its scope. When questions arise which are not covered by this booklet, the Company will be pleased to furnish information on them or any matter pertaining to its service.

When planning electrical installations for larger commercial or industrial establishments, it will be necessary for the Engineer, Architect, or Electrical Contractor to contact the Company for detailed information on service requirements.

All customer owned equipment shall be installed in accordance with the requirements of the latest revision of the National Electrical Code (NEC), or of any Federal, State, County or Municipal laws or statutes that may be in effect for governing electrical installations in the area where the installation is made. The Engineer, Architect, Electrical Contractor and Customer should ascertain that such requirements are met.

The National Electrical Safety Code (NESC), the NEC and various Federal, State, County and Municipal Ordinances are based on the prevention of hazards to life and property. They are not intended to mean that an electrical installation made in accordance with such rules and regulations is adequate for the customer's present or future electric service.

The requirements set forth herein are not necessarily complete facility or safety specification. Rather they cover matters of mutual concern to the Customer and the Company, which facilitate the supplying of electric service. The requirements are subject to revision from time to time without notification so that they keep pace with developments and progress in the electric industry. Compliance with these requirements does not absolve the Customer from the obligation to install and maintain wiring and equipment in a safe condition; also, the Company does not accept any responsibility for the quality or condition of the Customer's wiring or equipment. An electrical installation should not only be capable of serving the electrical devices of today in an efficient and convenient manner, but the customer should provide circuits and circuit capacity for future load growth.

SECTION 2
DEFINITIONS

CLEARANCES: The clear distance between two objects measured surface to surface. The clearance above ground, driveways, roads, etc. specified in this guide are minimum and required by the NESC for electrical conductor sag conditions. As such, during actual installations, higher clearances may be required to allow for the increased sag of cables/conductors under all conditions.

COMPANY: The word "Company" as used throughout this booklet refers to American Electric Power Company, an affiliate of the AEP system.

CUSTOMER: The word "Customer" means either a present or prospective user of the Company's electric service.

READILY ACCESSIBLE: Capable of being reached quickly, for operation, renewal, or inspections, without the necessity of climbing over or removing obstacles or resorting to portable ladders, stepstools, etc.

SERVICE: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served. Service has also come to be known as the supply of the Company's product, electricity, to the customer.

SERVICE DROP: The overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.

TENSION: The tension limits, if any, specified in this guide are the maximum limited by the NESC under applicable loading conditions. Hence, during installation, stringing sags and tensions provided by the Company standards will be used.

Definitions for the following can be found in the National Electrical Code: feeder, ground, grounding conductor, grounding electrode conductor, service conductors, service entrance conductors, overhead system, underground system, service equipment, service lateral, and service point.

SECTION 3
ELECTRIC SERVICES AVAILABLE

3.01 GENERAL

One system of electrical distribution is available, namely 60 Hertz alternating current. As the voltage and the number of phases which will be supplied depend upon the character of the load as well as its size and location, it is necessary for the customer to consult the Company regarding the type of service which will be furnished before proceeding with the purchase of equipment or the installation of wiring.

All services requested by the customer shall be metered for energy consumption, except for dusk to dawn lights and other special services covered under a tariff containing provisions for optional un-metered service. Commercial customers, depending on load, may require demand and reactive metering. Time of use metering may be available depending on the customer's load and tariff.

3.02 RESIDENTIAL SERVICE

Residential Service will be supplied single-phase three-wire, nominally 120/240 volts, or where available or needed, in a network, three-wire, nominally 120/208 volts.

3.03 COMMERCIAL AND INDUSTRIAL SERVICE

The secondary distribution available to serve commercial and industrial loads may be a three-wire, single-phase system, three-wire, three-phase system or four-wire, three-phase system. The Company should always be consulted in regard to the exact characteristics of the service that will be available.

3.04 SERVICE AT VOLTAGE ABOVE 240 VOLTS

Service may be available for applications at voltages higher than 240 volts. Refer to the "Terms and Conditions" of the appropriate company for service voltage available.

SECTION 4
GENERAL REQUIREMENTS

4.01 APPLICATION FOR ELECTRIC SERVICE

Application for electric service to either a new installation, or a revision of service for an existing installation, must be made to and accepted by the Company before service will be supplied. Application can be made by contacting the Company and should be made as far in advance as possible of the date service is required. The Customer must consult the Company for information concerning the point of attachment of the Company's service facilities to the Customer's building, the location of the meter, characteristics of service and other pertinent matters before proceeding with the installation of the service.

4.02 EXTENSION OF COMPANY'S FACILITIES

The Company will extend its facilities to provide service in accordance with the provisions of its tariffs on file with the Public Service Commission. When the Customer requests the Company to deliver energy in a manner or location other than that designated by the Company, the Customer will be required to pay the additional costs. The Company will be pleased to discuss its terms and conditions for the extension of facilities, upon request.

4.03 INSTALLATION AND RESPONSIBILITY

It is necessary for the protection of the Customer that all work, wiring and apparatus be installed and maintained in a safe manner by a licensed electrician or qualified party. The Customer, in accepting service from the Company, assumes full responsibility for the safety of the wiring and apparatus, which the Customer installs.

The Customer shall not operate any apparatus, which creates a condition that interferes with the Company's operation and prevents the Company from supplying satisfactory

service to the Customer or to other Customers. This condition includes, but is not limited to, operating equipment that interferes with the satisfactory operation of other Customer's radio, television and communication equipment.

The Company reserves the right to place restrictions on the type and manner of use of all the Customer's electrical equipment which is connected to the Company's lines, especially prohibiting any large loads of highly fluctuating or low power factor characteristics.

4.04 REQUIREMENTS FOR ELECTRICAL INSPECTION

The customer is responsible for obtaining inspections on work done to their electrical system as required by the local inspections authority.

4.05 CUSTOMER ALTERATIONS AND ADDITIONS

The Company's facilities used to provide service have definite capacity limitations and can be damaged by overloads. Therefore, the Customer must notify the Company prior to making alteration to the service entrance equipment so that facilities of proper capacity may be provided. The Customer shall be responsible for all expenses and/or damages to Customer's facilities resulting from failure to give proper notice. The Customer may also be subject to charges by the Company for work required to meet the Customers' alteration. The Customer should contact the Company for information concerning charges for such work.

4.06 TEMPORARY SERVICE

The Company has special requirements for temporary service and should be consulted for each case. Where the temporary service installation is to be used in conjunction with construction work, the Company's structural requirements are shown in Figure No. 1 (pages 1 and 2), "Temporary Service Installation From Existing Underground Secondary" and Figure No. 2, "Temporary Service Installation From Existing Overhead Secondary".

4.07 STRUCTURES NEAR OVERHEAD LINES

Structures, including signs, flagpoles, light standards, antennas or aerials shall not be installed under, over, or in such close proximity to lines carrying electric current that they could be raised into or fall onto such lines or that they cannot be safely maintained. Antennas or aerials shall not be attached to a Company pole or any pose used in supplying electric service to the Customer. Consult the Company for clearance requirements.

4.08 ATTACHMENTS TO COMPANY-OWNED FACILITIES

Under no conditions will the Customer's facilities be installed on the Company's poles or other property unless special arrangements have been made with the Company.

4.09 ACCESS TO CUSTOMER'S PREMISES

The Company's authorized agents and employees shall have access to the Customer's premises, only to the extent needed by the Company for access to its property and at all reasonable hours, for the purposes necessary in connection with supplying and maintaining service, and upon termination of service shall be permitted to remove any or all such property. Authorized Company employees visiting the premises of the Customer for any purposes are furnished with an identification card. The Customer should refuse admission to persons not having proper identification.

SECTION 5
OVERHEAD SERVICE REQUIREMENTS

5.01 SERVICE FROM OVERHEAD LINES

The Company will furnish and install, the service drop conductors extending from the Company's service pole to a point of attachment on the structure. The Company reserves the right in all cases to specify this point of attachment. In general, it will be at a point of the structure nearest the distribution pole from which the structure is to be served.

The insulated service drop conductors shall be attached to the structure or building at a height required to maintain minimum clearance of the service drop wires over sidewalks, above alleys, driveways (including residential) and public roads. When it is necessary, the customer or the customer's contractor shall furnish a mast to obtain the required clearances, as shown in figure 4. All clearances shall conform to the requirements of the latest issue of the NESC or other local regulations whichever is applicable.

Where the point of attachment is located on buildings constructed of wood, tile, stucco, concrete, asbestos shingles, plastered metal lath, brick veneer, or sheet iron, the customer or the customer's contractor shall install the necessary facilities for mounting and securing the service drop attachments which should withstand the maximum tension of the service drop cable. For proper tension, which depends on the size and number of service conductors, the Company should be consulted.

Figure 4 and 5 shows the Company's specifications for overhead service attachments on buildings.

5.02 MOBILE HOME OVERHEAD SERVICE

Figure 3 shows the details of the Company's requirements for an overhead service to a mobile home. When this type of service is requested, the Company will approve the service equipment installation to ensure that it meets the Company's construction requirement.

A mobile home service requires a four-wire conductor cable that has a grounded circuit conductor (neutral), as well as a grounding conductor (ground) installed between the mobile home and its adjacent service equipment. The grounded circuit conductor (neutral) shall be insulated from the grounding conductor and from equipment enclosures

and other grounded parts. Neither the frame of the mobile home nor the frame of any distribution panel or an appliance may be connected to the grounded neutral conductor in the mobile home as per the requirements of the latest revision of the NEC. The grounding conductor and the grounded neutral conductor are bonded together only at the service disconnecting means.

SECTION 6
UNDERGROUND SERVICE REQUIREMENTS

6.01 UNDERGROUND SERVICE

Where the installation of an underground service is contemplated, the customer or his contractor shall consult the Company. Figure No. 7 shows the Company's specifications for underground service. Notice is hereby given that anytime any underground service is requested of AEP, it is the responsibility of the property owner and/or his or her agents to have any underground facilities marked that are not a part of the one number call system. These would include service water line, drainage tiles, private lighting systems, sprinkler systems, and geothermal systems. AEP will not be responsible for any damages to unmarked facilities.

6.02 MOBILE HOME UNDERGROUND SERVICE

Figure 8 shows the Company's requirements for underground service to a mobile home using a pressure treated wood post. When service is requested, the Company will approve the service equipment installation, including wood post location, to ensure that it meets the Company's construction requirements.

On this type of installation, the wood post and any other wood accessories used by the customer, shall be pressure treated lumber. Plywood, particleboard, or untreated post, are not acceptable. Screws and nails used to fasten the metering equipment to the wood structure shall be the galvanized, stainless, or aluminum type.

A mobile home service requires a four-wire conductor cable containing a grounded circuit conductor (neutral), as well as a grounding conductor (grounding) installed between the mobile home and its adjacent service equipment in accordance with the NEC. Neither the frame of the mobile home nor the frame of any distribution panel or appliance may be connected to the grounded neutral conductor in the mobile home. The grounding conductor and the grounded neutral conductor are bonded together only on the supply side of the service disconnecting means.

SECTION 7
SERVICE ENTRANCE

7.01 SERVICE ENTRANCE CONDUCTORS

The service entrance cable or raceway, extending from the point of attachment on the structure to the Company-owned metering equipment, shall be run exposed for its entire length except in those cases where it is necessary to pass through over-hanging eaves or projections from the main wall of the building. Where this is necessary, the service entrance cable shall be protected from physical damage in accordance with the NEC. Where conduit is used for protecting the service entrance conductors, there shall be no joints in the length of conduit that is covered by the building construction. In cases acceptable to the Company, and for purposes of obtaining necessary clearance to the ground for the service drop conductors, a rigid metallic conduit will be required and may extend through the roof not more than 36 inches unless guyed. Figure No. 5 shows one example of this type of construction. The service entrance conductors and conduit will be furnished and installed by the customer or their contractor. Appropriate clearance of overhead electric supply lines shall be maintained in accordance with the NESC at all times.

7.02 COMMERCIAL OR INDUSTRIAL SERVICE ENTRANCE

The service entrance conductor needs of commercial and/or industrial customers are usually more complex than those for residential customers. To assure that such services meet the electrical load requirements, the Company shall be consulted in every case before plans are made or equipment purchased. Service entrance conductors are furnished and installed by the customer in accordance with the requirements of the NEC. In cases where the Company supplies the service, the requirements of the NESC shall govern.

For those commercial metering installations (below 600 volts) that require current transformer cabinet/enclosure, the customer shall furnish and install the cabinet as specified in figures 9, or 10. The enclosure shall have provision for Company lock and seal, which is solely for Company access. All enclosures shall be of substantial strength painted galvanized steel NEMA 3R. Local inspecting authorities may require enclosure to be UL listed or equivalent.

For those commercial metering installations that the Company installs bushing type current transformers in Company pad-mount transformers the customer will install, per figure 11, the transformer rated meter socket on the side of the building if the Company's pad-mount transformer is within 25 feet. If not the socket shall be installed as per drawing 12. Distances greater than 25 feet must be approved by Meter Services.

Bolted connections shall be made in accordance with figure 15.

7.03 TRANSFORMER VAULTS

Where the service requires a transformer vault the customer shall, in every case, consult the Company regarding the location and construction before plans are made. The customer will normally provide the transformer vault(s) to our specifications. If the customer chooses not to provide the vault(s) on his property, then AEP, at its option, will provide these facilities at a suitable location and may require reimbursement as an aid to construction. Such vaults shall comply with the requirements of Article 450 of the NEC and such local and Company requirements as may be in force at the time the installation is made. Any pipe or duct system foreign to the electrical installation shall not enter or pass through a transformer vault. Piping or other facilities provided for vault fire protection or for transformer cooling shall not be considered foreign to the electrical installation.

Access to such vaults shall be limited only to authorized Company personnel. Transformer vaults shall contain only the Company's transformers and their auxiliary and spare equipment. Materials shall not be stored in transformer vaults. Customer's secondary circuit breakers, fuses and switches shall not be installed in the vault.

7.04 GROUNDING

The grounded neutral conductor of the service entrance conductors shall be grounded in accordance with the NEC.

All conduits, metallic tubing and service entrance equipment shall be grounded in accordance with the latest revision of the NEC. The NEC or other local governing code shall be consulted at the time for dimensions, specification of material, and to determine the appropriate method of installing the grounding system.

The equipment grounding conductors should not be installed along with the service entrance conductors being installed to our secondary compartment of the Company's padmount transformers.

Communication companies, such as telephone and cable television, are forbidden to ground their systems to the meter enclosure.

SECTION 8
METERING EQUIPMENT

8.01 METER LOCATION

The location of the metering device is of interest to both the customer and the Company. The Company will designate the location of this apparatus, which in all cases shall be an area readily accessible to meter readers and other Company personnel. No trees or shrubs shall be planted in front of the meter. In general, a location shall be such that it will not interfere with traffic, sidewalks, or driveways nor obstruct the opening of doors and windows.

When it is impossible to locate the meter outdoors and the meter is installed indoors, it

shall be in a readily accessible location as near as possible to the point where the service conductors enter the building with the bottom of the meter being not more than 5' nor less than 3' from the floor.

Where it is necessary to install Company meters within the building to be served, the contractor shall provide where required, a meter board of sufficient dimensions to accommodate equipment to be mounted thereon. This board shall be well constructed of treated soft wood, at least 3/4 inch thick, mounted in a true vertical and horizontal position securely fastened to the building with a minimum space of 1 inch between the back of the board and the wall.

The meter shall not be installed where it is subject to vibration, excessive dampness, or mechanical injury, nor shall it be installed in a stairway, coal bin, fruit cellar, bathroom, toilet, bedroom, attic, store window, back of shelving, near moving machinery, or similar inconvenient or dangerous places.

Except for mobile home overhead services described in Section 5, meters will be mounted on poles only when no other means of mounting are feasible. When mounted on poles, all devices and methods of mounting will be specified by the Company.

8.02 METER SOCKETS

All meter sockets installed in the AEP service territory shall be of a type approved by the company and meet all requirements in construction and features. In addition, meter sockets purchased by the customer shall be UL listed and labeled in accordance with National Electrical Code.

Repairs to meter sockets are the responsibility of the customer. If repairs cannot restore the socket to its standard condition, the customer will be notified in writing to replace the damaged meter socket within (30) thirty days to avoid a disconnection of service.

The Company may in the interests of safety and efficiency, and at its sole discretion, make minor repairs to meter sockets.

8.03 METER IDENTIFICATION ON MULTI-OCCUPANCY BUILDINGS

On multi-occupancy buildings, all meter sockets (including the inside of the socket and cover), and main service disconnect switches shall be plainly and permanently marked with numbers and/or letters by the owner so as to indicate the building address or apartment address served. The markings must be either engraved phenolic nameplates or adhesive-type labels at least one inch high. Felt tip pens and label maker tape are not considered permanent marking. Service will not be established until marking is complete. AEP will assume no responsibility for inspecting the customer's equipment, or the accuracy of matching premise location as indicated on the meter socket and main service disconnect switch, but shall have the right to satisfy itself that the service is certified by the local inspection authorities and that it is safe to connect.

8.04 RELOCATION OF SERVICE AND METER EQUIPMENT

Whenever it becomes necessary to relocate the service entrance and meter equipment of

an existing installation, the Company shall be consulted before such work is begun. The Company will attempt to minimize interruption of service during the changeover period. Where applicable, additional charges may be necessary for relocation of or changes to power facilities serving the customer, especially if the work is performed at the customer's request and for the customer's convenience.

8.05 NO CONNECTIONS AHEAD OF METERING DEVICES

The connection of any customer owned apparatus or device to the service conductors ahead of the Company owned meters or to the meter socket without Company authorization is expressly forbidden. A 480-volt self-contained meter installation, figure 13, requires the installation of an (provided and installed by customer) un-fused disconnect switch ahead of the meter socket for the safety of Company's employee.

Meter Socket/current transformer enclosure/cabinet shall not be used as a junction box.

8.06 SEALS

All enclosures containing un-metered conductors shall be capable of being effectively sealed by the Company.

The breaking of seals by other than authorized persons or tampering with the Company's meters and measuring devices is prohibited. Where the Company detects that the physical facilities of the Company have been tampered with so as to cause an unauthorized use of electric energy, or loss of meter registration, the Company may at any time without notice, discontinue the supply of electric energy to the customer and remove its meter and other apparatus until such time as the customer has corrected the condition to the satisfaction of the Company. Such tampering could result in criminal actions, depending upon applicable state laws.

8.07 Energy Management

The Company recommends that the Customer who is contemplating the installation of demand or energy control equipment, contact the Company prior to installing such equipment.

At the Customer's request, the Company will furnish energy and/or time pulses. The Customer will be charged for the installation costs to supply these pulses.

SECTION 9
CUSTOMER'S SERVICE EQUIPMENT

9.01 GENERAL

Each ungrounded service conductor shall have over-current protection in the form of circuit breakers or fuses and disconnecting means. This may consist of one but not more than six fused switches or circuit breakers in one enclosure or in separate enclosures

grouped at some point as near as possible to the point of entry in the building of the service entrance conductors.

All service equipment shall be of an APPROVED type and bear the listed label from a testing laboratory such as Underwriters' Laboratory.

Fused disconnecting switches shall be installed so that the fuses are "de-energized" when the switch is in the open position. Circuit breakers should be of the trip-free type with all live parts fully enclosed.

9.02 SERVICE EQUIPMENT RATING

The service entrance conductors and the service equipment on residential buildings should have a rating of not less than 100 amperes, 120/240 volts, three-wire, or have an electrical rating large enough to accommodate the initial electrical load plus anticipated future needs. The equipment interrupting rating shall exceed the fault availability as determined by the Company.

All fuses and circuit breakers shall be provided by the customer and shall be of suitable capacity to protect the wiring installation and utilization equipment connected thereto. Circuit protective devices shall not have a rating higher than the current carrying capacity of the conductors that they protect, except where it is necessary to provide for motor starting currents. "Time delay" or "time lag" fuses or circuit breakers are recommended for protection of branch circuits supplying motor driven devices.

It is not permissible to fuse or switch the grounded neutral conductor of a grounded system. The customer shall consult the latest applicable edition of the NEC, and other local codes for applicable requirements.

9.03 Customer Owned Current Transformer Enclosures Specifications

Enclosure Construction
In non-corrosive areas, steel enclosures may be used. Steel enclosures shall be a minimum of G-90 galvanized steel. All edges shall be smooth after forming. Enclosure shall be painted after fabrication. Finish coat shall be minimum of 2 mils thickness and provide a tough, non-chalking weather resistant finish. Construction shall be in accordance with ANSI/UL50. Outdoor enclosures shall be rated Type 3R. Current transformer enclosure shall be fitted with hinged door(s) and sealing shall be provided by minimum stainless steel latch and rivet with provision for 3/8-inch padlock and/or ribbon seal. The inside back of enclosure shall be entirely covered by ¾ inch treated plywood or suitable mounting brackets may be provided. A grounding lug shall be provided to ground the enclosure.

Protection
Enclosures shall be designed to protect personnel against accidental contact with the electrical devices. Guard against unauthorized use of electric service and cannot be opened without either breaking the seal or visibly damaging the enclosure.

Corrosive Environments
Aluminum or fiber reinforced polyester enclosures must be used in corrosive areas.

Corrosive areas are installations within 30 miles of the Texas Gulf of Mexico coast and any other area where high moisture or chemical exposure may exist such as chemical plants or water treatment plants. Enclosure construction shall be in accordance with ANSI/UL50. Outdoor enclosures shall be rated Type 3R. Current transformer enclosure shall be fitted with hinged door(s) and sealing shall be provided by high strength stainless steel latch with provision for 3/8-inch padlock and/or ribbon seal. Exposed hinges and hardware shall be minimum 316-grade stainless steel or better. Other methods of sealing may be acceptable, but must be approved by AEP prior to being utilized. The inside back of enclosure shall be entirely covered with back plate or suitable mounting brackets may be provided. Enclosure ventilator required. A grounding lug shall be provided to ground the enclosure.

SECTION 10
CUSTOMER'S UTILIZATION EQUIPMENT

10.01 GENERAL

All customer utilization equipment must be designed for operation on alternating current at a nominal frequency of 60 Hertz.

Customers installing power factor correction apparatus shall consult the Company to ensure that such apparatus will have suitable characteristics to accomplish the desired results.

In general, the Company shall be notified before any significant new load is added to ensure that adequate capacity is available. This includes air conditioning and heat pumps.

10.02 VOLTAGE FLUCTUATION AND FLICKER LIMITS

Welders, X-ray equipment, motors, power electronic equipment or other equipment, the load of which is of such a character as to cause major voltage fluctuations, voltage flicker, and significant wave form distortion or system overloads, are subject to individual consideration and approval by the Company. Where such equipment is used, the customer may be required, at his expense, to install corrective devices or apparatus, or may be requested to limit the operation of this equipment, to prevent disturbances caused by such equipment from affecting service to other customers. Objectionable fluctuations result from the combination of the magnitude of the fluctuation and the frequency of occurrence of the fluctuations. Other disturbances may include equipment miss-operation and possible damage to other customers' equipment or process.

In order to avoid misunderstanding and inconvenience, the customer or his electrical contractor should consult the Company before purchasing motors or any other devices of the character mentioned above. There are certain Public Service Commission requirements and/or industry standards that may be required to be met to alleviate possible adverse effects to other services or equipment. Even in cases where the Company gives prior permission, it cannot give absolute assurance that the installation will not later require changes in order to maintain proper service, if either the information provided earlier was not accurate or changes occurred in customer load.

10.03 CURRENT/VOLTAGE HARMONIC DISTORTION LIMITS

For all customers the following limits apply with regard to harmonic distortion that can occur from customer usage of non-linear loads such as variable speed motors, arc furnaces, rectifiers, low wattage electric lights, and other electronic loads. For Current Distortion, the Total Demand Distortion (TDD) limit can range from 5% to 20% (of the maximum metered demand) depending on the short circuit strength of the electrical system in relation to the customer load. For voltage, the Total Harmonic Distortion (THD) limit is 5% of the system nominal voltage. Individual harmonic component levels for both current and voltage are required to be lower than the above stated limits. These limitations are located at the point of common coupling where the customer and utility systems interface.

It is recommended that the customer consult the Company if these total limits are exceeded or require assistance in determining the acceptable harmonic levels and on recommendations for mitigation of unacceptable harmonic levels contributed from customer load.

10.04 PROTECTION FOR VOLTAGE SENSITIVE EQUIPMENT

The customer shall provide and maintain suitable protective devices on his equipment to prevent any loss, injury or damage that might result from single phasing conditions or any other fluctuation or irregularity in the supply of energy.

To prevent possible equipment failure and data loss, computers, programmable controllers and other voltage sensitive digital devices should be protected against abnormal system conditions by using commercially available AC line conditioners, surge suppressors or uninterruptible power supplies to provide a constant power source to these devices.

10.05 MOTORS

All motor installations should be provided with devices that will protect the motor and motor circuit against overload, and short circuit. In addition, three-phase motors should be protected against single-phase operation. All motors that cannot be safely subjected to full voltage at starting, and are not equipped with automatic restarting means, should be provided with a device to ensure that, on failure of supply voltage, the motor will be disconnected from the line or the starting device returned to the "off" position. To prevent unnecessary shutdowns, it is recommended that this "no voltage release" device be equipped with a time delay feature so that it will not function until the motor speed drops to a point where it will not pick up on a restoration of service.

All equipment and motor frames are to be grounded using a grounding conductor according to the NEC or be double insulated.

For the requirements for motor circuits and controllers, refer to the NEC. Wire sizing and limitations can be found in the NEC book.

10.06 EMERGENCY STAND-BY GENERATOR

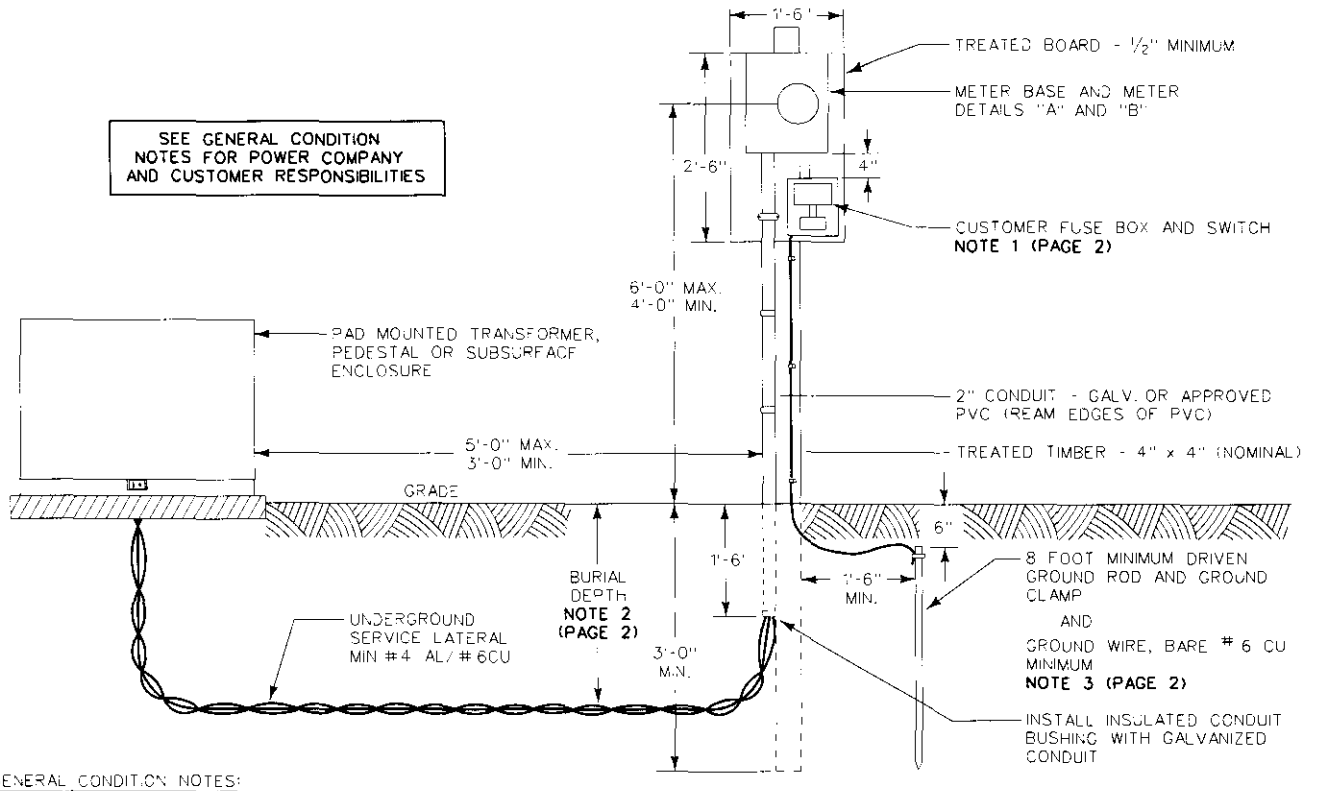
The Company shall be notified of customer intention to install an Emergency Stand-By Power System. In such cases, Company investigation shall ensure the proper procedures to eliminate any back feed to the Company's Power System that may result in endangering public and/or Company personnel and damage to Company or customer property. The transfer equipment installed with emergency standby generators shall be installed in accordance with the NEC.

10.07 PORTABLE GENERATOR

A positive method of isolating utility power circuits from the generator circuits must be provided. The following hazards exist which require that different power sources be isolated:

1. DANGER! Electrocution of Company personnel can result if the generator circuit is not properly isolated from the electric utility power circuit.

2. If generator and utility power are not isolated from each other and utility power is restored while the generator is supplying power, utility power can back feed through the generator. Damage to the generator and a possible electrical fire can then occur.



GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) SPECIFYING THE LOCATION FOR THE TEMPORARY POST STRUCTURE AND GROUND ROD. THE TEMPORARY POST SHALL NOT BE LOCATED IN LINE WITH THE PROPOSED PERMANENT SERVICE.

(b) DESIGNATING THE LOCATION FOR THE TRENCH FOR THE TEMPORARY SERVICE INSTALLATION AND THE DISTANCE THAT THE TRENCH IS TO TERMINATE FROM EITHER THE TRANSFORMER OR SECONDARY PEDESTAL.

(c) COMPLETING THE TRENCHING TO EITHER THE TRANSFORMER OR THE SECONDARY PEDESTAL; MAKING THE CONNECTIONS TO THE UNDERGROUND SERVICE LATERAL TO EITHER THE TRANSFORMER OR SECONDARY PEDESTAL.

(d) PROVIDING THE METER BASE TO THE CUSTOMER WHERE REQUIRED.

(e) INSTALLING AND REMOVING THE METER.

(f) DISCONNECTING THE CONNECTIONS IN THE TRANSFORMER OR SECONDARY PEDESTAL AND REMOVING THE METER.

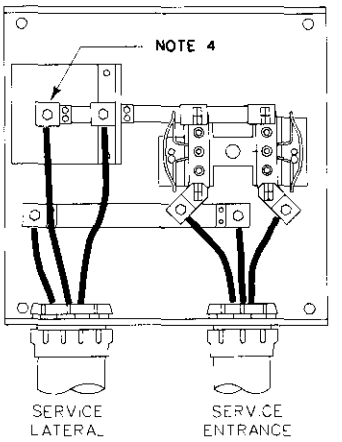
THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING THE TEMPORARY STRUCTURE; FUSE BOX AND SWITCH; CONDUIT; UNDERGROUND SERVICE LATERAL AND CABLE TERMINAL LUGS (IF NEEDED); GROUND ROD; GROUND CLAMP; AND GROUND WIRE. SERVICE LATERAL PROVIDED BY THE COMPANY WHERE REQUIRED BY GOVERNMENTAL REGULATION.

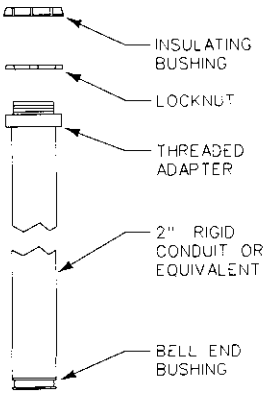
(b) TRENCHING THE DESIGNATED DISTANCE BETWEEN THE TEMPORARY POST AND THE POWER COMPANY'S TRANSFORMER OR PEDESTAL. CUSTOMER TO DETERMINE LOCATION OF ALL UTILITIES BEFORE TRENCHING

(c) PROVIDING WEATHER-PROOF (OR COVERED) SERVICE ENTRANCE EQUIPMENT (UL LISTED WITH FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER - 3 WIRE). EQUIPMENT SHALL BE SIZED AS REQUIRED AND MOUNTED ON A BOARD BASE.

(d) SECURELY MOUNTING THE METER BASE IN A PLUMB POSITION.



DETAIL "A"
METER BASE



DETAIL "B"
RISER ASSEMBLY

(e) MAKING ALL CONNECTIONS IN THE METER SOCKET.

(f) PROVIDING THE INSPECTION IF NECESSARY. INSTALLATION OF EQUIPMENT TO BE IN ACCORDANCE WITH POWER COMPANY STANDARDS AND / OR LOCAL ORDINANCES OR CODES.

(g) THE REMOVAL OF EQUIPMENT AFTER BEING DISCONNECTED.

TEMPORARY SERVICE INSTALLATION FROM EXISTING URD SECONDARY

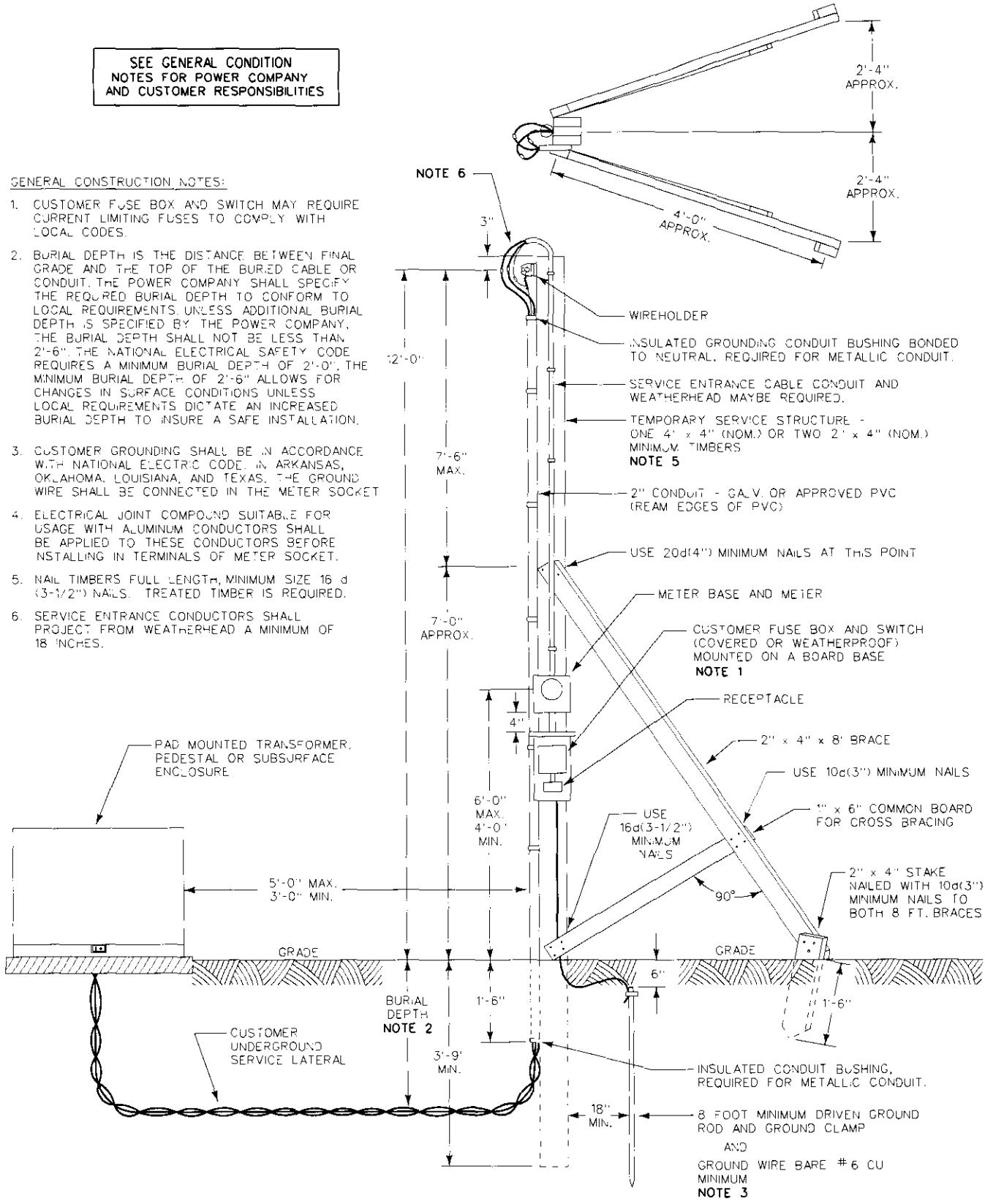
FIGURE 1

PAGE 1 OF 2

SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES

GENERAL CONSTRUCTION NOTES:

1. CUSTOMER FUSE BOX AND SWITCH MAY REQUIRE CURRENT LIMITING FUSES TO COMPLY WITH LOCAL CODES.
2. BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. THE POWER COMPANY SHALL SPECIFY THE REQUIRED BURIAL DEPTH TO CONFORM TO LOCAL REQUIREMENTS. UNLESS ADDITIONAL BURIAL DEPTH IS SPECIFIED BY THE POWER COMPANY, THE BURIAL DEPTH SHALL NOT BE LESS THAN 2'-6". THE NATIONAL ELECTRICAL SAFETY CODE REQUIRES A MINIMUM BURIAL DEPTH OF 2'-0". THE MINIMUM BURIAL DEPTH OF 2'-6" ALLOWS FOR CHANGES IN SURFACE CONDITIONS UNLESS LOCAL REQUIREMENTS DICTATE AN INCREASED BURIAL DEPTH TO INSURE A SAFE INSTALLATION.
3. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE, IN ARKANSAS, OKLAHOMA, LOUISIANA, AND TEXAS. THE GROUND WIRE SHALL BE CONNECTED IN THE METER SOCKET
4. ELECTRICAL JOINT COMPOUND SUITABLE FOR USAGE WITH ALUMINUM CONDUCTORS SHALL BE APPLIED TO THESE CONDUCTORS BEFORE INSTALLING IN TERMINALS OF METER SOCKET.
5. NAIL TIMBERS FULL LENGTH, MINIMUM SIZE 16 d (3-1/2") NAILS. TREATED TIMBER IS REQUIRED.
6. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT FROM WEATHERHEAD A MINIMUM OF 18 INCHES.



TEMPORARY SERVICE INSTALLATION
FROM EXISTING URD SECONDARY

FIGURE 1

PAGE 2 OF 2

SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES

GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING OVERHEAD SERVICE DROP (NO.2 OR NO.4 TRIPLEX SERVICE DROP).

(b) PROVIDING THE METER BASE TO THE CUSTOMER WHERE REQUIRED.

(c) INSTALLING AND REMOVING THE METER.

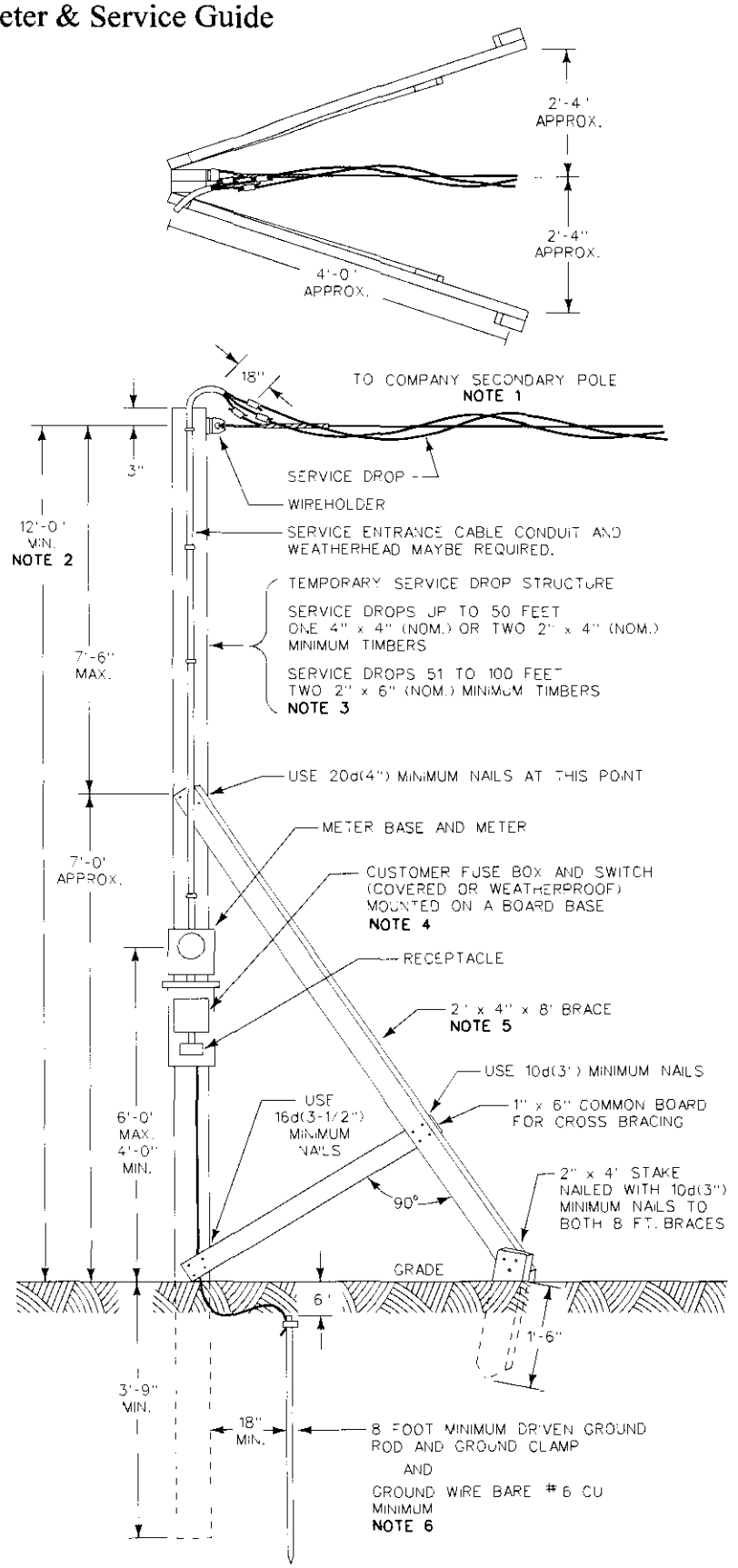
THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING THE COMPLETED TEMPORARY STRUCTURE TO WHICH SERVICE DROP WILL BE ATTACHED. INSTALLATION MUST MEET THE POWER COMPANY'S REQUIREMENTS TO BE CONNECTED. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT FROM WEATHERHEAD A MINIMUM OF 18 INCHES.

(b) A TOOL SHED (IF AVAILABLE) OR OTHER TYPE OF FIXED SUPPORT MAY BE USED AS A TEMPORARY SERVICE DROP ATTACHMENT IF SUCH SUPPORT PROVIDES EQUAL STRENGTH AND PROPER CLEARANCES.

GENERAL CONSTRUCTION NOTES:

1. TEMPORARY SERVICE DROPS NOT TO EXCEED 100 FEET.
2. THE SERVICE ATTACHMENT SHALL BE INSTALLED AT A HEIGHT THAT MAINTAINS PROPER CLEARANCES FOR SERVICE DROP CONDUCTORS, REFER TO FIG. 4.
3. NAIL TIMBERS FULL LENGTH, MINIMUM SIZE 16 d (3-1/2") NAILS. TREATED TIMBER IS REQUIRED.
4. CUSTOMER FUSE BOX AND SWITCH MAY REQUIRE CURRENT LIMITING FUSES TO COMPLY WITH LOCAL CODES.
5. SERVICE POLE SHALL BE BRACED WITH TWO 2" x 4" x 8'-0" BRACES NAILED TOGETHER FOR INCREASED STIFFNESS.
6. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. IN ARKANSAS, OKLAHOMA, LOUISIANA, AND TEXAS, THE GROUND WIRE SHALL BE CONNECTED IN THE METER SOCKET.



TEMPORARY SERVICE INSTALLATION
FROM EXISTING OVERHEAD SECONDARY

FIGURE 2

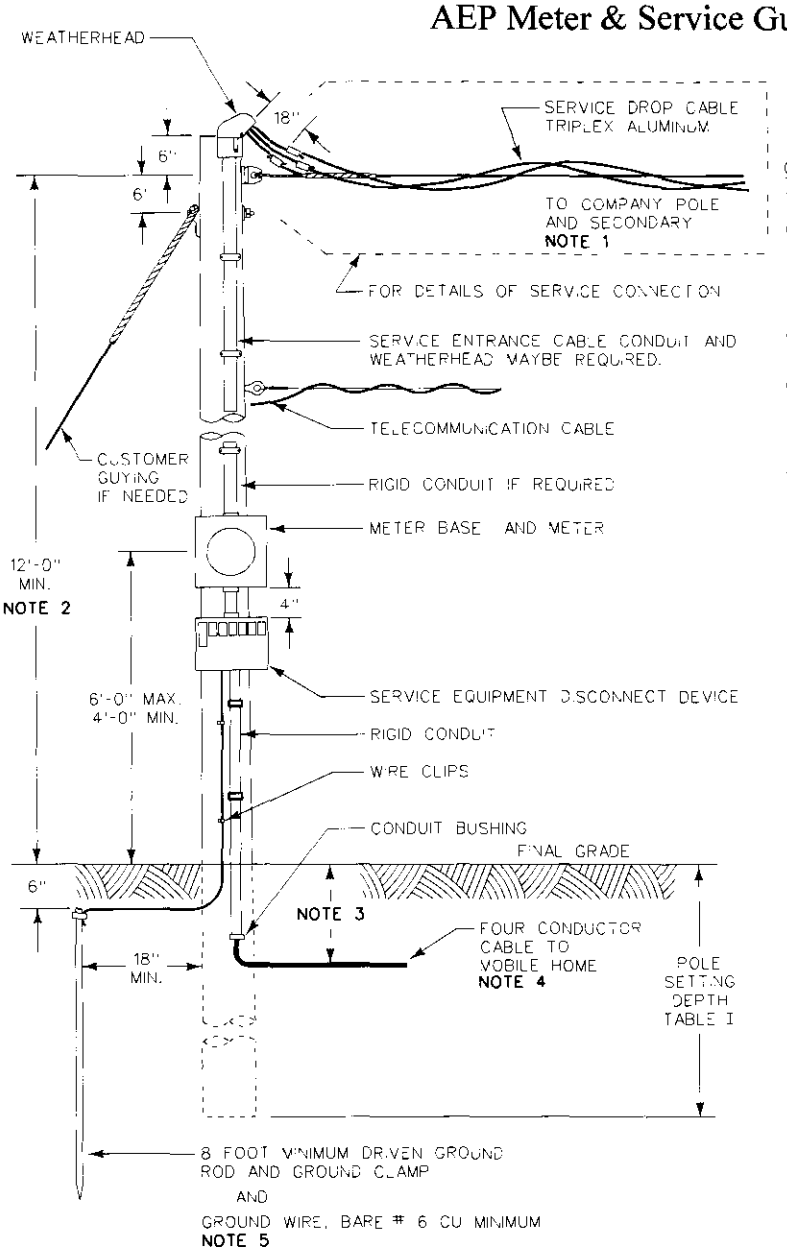


TABLE I

POLE DIMENSIONS AND SETTING DEPTH

LENGTH OF POLE (FEET)	MINIMUM SETTING DEPTH (FEET)	MINIMUM POLE CIRCUMFERENCE (INCHES)	MINIMUM POLE DIAMETER (INCHES)
		AT TOP 15"	AT TOP 4¾"
		AT GROUND LINE	AT GROUND LINE
18'	4'-0"	17 ½"	5½"
20'	4'-6"	18½"	6'
22'	4'-6"	19½"	6¼"
25'	5'-0"	20"	6½"

SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES

GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) SPECIFYING THE SERVICE POLE LOCATION, AND SERVICE DROP ATTACHMENT HEIGHT. NOTE: NATIONAL ELECTRIC CODE (NEC) RECOMMENDS THAT THE SERVICE EQUIPMENT BE "IN SIGHT FROM" AND WITHIN 30' OF THE MOBILE HOME.

(b) PROVIDING AND INSTALLING THE OVERHEAD SERVICE DROP.

(c) PROVIDING THE METER BASE TO CUSTOMER WHERE REQUIRED.

(d) INSTALLING AND REMOVING THE METER.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AN ADEQUATE GROUND TO THE FRAME OF THE SERVICE EQUIPMENT DISCONNECT DEVICE. GROUND IN ACCORDANCE WITH NEC ARTICLE 250 AND LOCAL CODES. GROUNDING IS TYPICALLY PROVIDED BY 8'-0" DRIVEN GROUND ROD(S) OR BY A METALLIC WATER PIPE BONDED TO 8'-0" DRIVEN GROUND ROD(S). IF A METALLIC WATER PIPING SYSTEM IS PRESENT, IT MUST BE BONDED TO THE 8'-0" DRIVEN GROUND ROD(S).

(b) PROVIDING AND SECURELY INSTALLING THE SERVICE ENTRANCE CABLE, RIGID CONDUIT AND WEATHER HEAD AS REQUIRED BY LOCAL CODES. NON-METALLIC CONDUIT PERMITTED IF INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NEC AND APPROVED BY LOCAL INSPECTION AUTHORITY. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT FROM WEATHERHEAD A MINIMUM OF 18 INCHES. ONLY POWER SERVICE CONDUCTORS ARE ALLOWED TO CONTACT THE SERVICE MAST, NEC (230-28)

(c) PROVIDING AND INSTALLING SERVICE EQUIPMENT DISCONNECT DEVICE. TYPICAL CONFIGURATIONS SHOWN (OTHER CONFIGURATIONS AVAILABLE). THE DISCONNECT DEVICE IS TO HAVE OVERCURRENT PROTECTION AND TO BE IN A WEATHERPROOF ENCLOSURE. CUSTOMER TO SELECT U.L. LISTED EQUIPMENT BEST SUITED TO THEIR NEEDS.

(d) SECURELY MOUNTING METER BASE IN A PLUMB POSITION. METER MUST FACE STREET OR ACCESS WALKWAY.

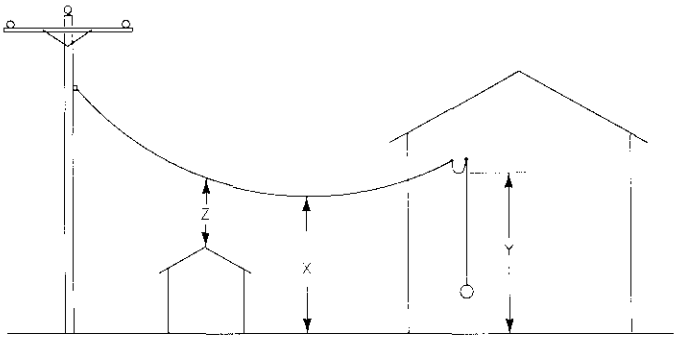
(e) PROVIDING AND SECURELY INSTALLING THE SERVICE POLE AND GUYING (IF NEEDED). SERVICE POLE IS TO BE TREATED WITH AN EPA REGISTERED PRESERVATIVE. POLE SETTING DEPTH TO BE IN ACCORDANCE WITH TABLE I.

GENERAL CONSTRUCTION NOTES:

1. THIS INSTALLATION IS FOR A SINGLE MOBILE HOME ONLY. FOR MOBILE HOMES IN PARKS, REFER TO FIG. 8.
2. THE SERVICE ATTACHMENT SHALL BE INSTALLED AT A HEIGHT THAT MAINTAINS PROPER CLEARANCES FOR SERVICE DROP CONDUCTORS, FIGURE 4.
3. BURIAL DEPTH TO COMPLY WITH LOCAL CODES. 2'-0" MINIMUM IS CONSIDERED ADEQUATE BY NEC, ARTICLE 300-5.
4. A GROUNDING AS WELL AS A GROUNDED CONDUCTOR MUST EXTEND BETWEEN THE MOBILE HOME AND ITS ADJACENT SERVICE EQUIPMENT. NEITHER THE FRAME OF THE MOBILE HOME NOR THE FRAME OF ANY DISTRIBUTION PANEL OR APPLIANCE MAY BE CONNECTED TO THE NEUTRAL (GROUNDED) CONDUCTOR IN THE MOBILE HOME. THE GROUNDING AND GROUNDED CONDUCTOR ARE BONDED TOGETHER ONLY ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT DEVICE. REFER TO ARTICLE 550-11 OF NEC GROUNDING.
5. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. IN ARKANSAS, OKLAHOMA, LOUISIANA, AND TEXAS, THE GROUND WIRE SHALL BE CONNECTED IN THE METER SOCKET.

SINGLE MOBILE HOME OVERHEAD SERVICE

FIGURE 3



X IN-SPAN GROUND CLEARANCE
Y DRIP LOOP GROUND CLEARANCE
Z ROOF OR BALCONY CLEARANCE

SERVICE DROP CABLE CLEARANCES

NATURE OF SURFACE UNDERNEATH SERVICE DROP CABLE	VERTICAL CLEARANCE ABOVE SURFACE FOR SERVICE DROP CABLE (FEET) **NOTES 1 AND 2**
TRACK RAILS OF RAILROADS	24.0
ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC **NOTE 3**	16.0
DRIVEWAYS, PARKING LOTS, AND ALLEYS	15.0 **NOTE 4**
SPACES AND WAYS SUBJECT TO PEDESTRIANS OR RESTRICTED TRAFFIC ONLY **NOTE 5**	12.0 **NOTE 6**
ROOFS OR BALCONIES	8.0 **NOTE 7**
SWIMMING POOLS	22.5 **NOTE 8**

NOTES:

1. ALL CLEARANCES LISTED ARE SPECIFIED BY THE N.E.S.C. THESE ARE MINIMUM CLEARANCES WHICH MUST BE MET FOR THE SAG CONDITION WHICH CAN OCCUR EITHER AT: MAXIMUM OPERATING CONDUCTOR TEMPERATURE OR, MAXIMUM LOADING AT 32° F, N.E.S.C. ICE, FINAL SAG.

   AN INCREASE IN DESIGN CLEARANCE AT TIME OF INSTALLATION IS RECOGNIZED AND ACCEPTABLE TO ACCOUNT FOR FUTURE RESURFACING OR GRADE CHANGES. A 12 INCH INCREASE IS TYPICAL IN LIEU OF ANY SPECIFIC INFORMATION. IT IS RECOMMENDED THAT THIS FACTOR SHOULD BE CONSIDERED AND, AS APPROPRIATE, INCLUDED WHEN PLANNING SERVICE INSTALLATIONS.

   A POINT OF CLARIFICATION IS NECESSARY REGARDING WHAT CAN APPEAR TO BE A 2 FOOT INCONSISTENCY BETWEEN THE N.E.S.C. AND THE N.E.C. FOR CLEARANCES OVER "ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC" (N.E.S.C. - 16 FEET VS. N.E.C. - 18 FEET). N.E.C. CLEARANCES ARE SPECIFIED (WITH LESS SAG) AT A CONDUCTOR TEMPERATURE OF 60° F., NO WIND, WITH FINAL UNLOADED SAG IN THE CONDUCTOR. THE 2 FOOT DIFFERENCE IS PARTIALLY ATTRIBUTED TO COMPARATIVELY LARGER SAG BY N.E.S.C. SPECIFICATIONS. ADDITIONAL ALLOWANCES MADE FOR RESURFACING, ETC. IN APPLICATION OF THE N.E.S.C. RULE WILL ACCOUNT FOR THE REST OF THE 2 FOOT DIFFERENCE. A SERVICE INSTALLED TO EITHER SPECIFICATION WOULD BE VERY SIMILAR WHEN ANALYZED BY THE OTHER. THEREFORE, THERE IS NO PRACTICAL INCONSISTENCY BETWEEN THE TWO CODES IN THIS SITUATION.

2. IN ADDITION TO PROPER DESIGN FOR GROUND/SURFACE CLEARANCES, BE CAREFUL TO PROVIDE CLEARANCES FROM BUILDING OPENINGS, WINDOWS, DOORS ETC. (TYPICALLY 3'-0"). PROVIDE A MINIMUM CLEARANCE OF THREE (3) INCHES FROM DOWNSPOUTS AND EAVES FOR SERVICE CONDUCTORS 0 TO 750 VOLT. FOR CONDUCTORS MEETING N.E.S.C. RULE 230C1, 230C2 OR 230C3 THIS CLEARANCE MAY BE REDUCED TO ONE (1) INCH. ROUTE SERVICES SO THAT RAISED PATIO/DECK AREAS CAN BE AVOIDED IF POSSIBLE. AS AN ALTERNATIVE, CONSIDER PROVIDING ADDITIONAL CLEARANCE, WHEN FEASIBLE.

3. TRUCKS ARE DEFINED AS ANY VEHICLE EXCEEDING 8 FEET IN HEIGHT. AREAS NOT SUBJECT TO TRUCK TRAFFIC ARE AREAS WHERE TRUCK TRAFFIC IS NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.

4. FOR RESIDENTIAL DRIVEWAYS ONLY, WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 15 FEET OF CLEARANCE, THE CLEARANCES MAY BE REDUCED TO:

   SERVICES 277 VLG:
   IN-SPAN GROUND CLEARANCE - 12.5 FEET
   DRIP LOOP GROUND CLEARANCE - 10.5 FEET

   SERVICES 120 VLG:
   IN-SPAN GROUND CLEARANCE - 12.0 FEET
   DRIP LOOP GROUND CLEARANCE - 10.0 FEET

5. SPACES AND WAYS SUBJECT TO PEDESTRIAN OR RESTRICTED TRAFFIC ONLY ARE THOSE AREAS WHERE RIDERS ON HORSEBACK, VEHICLES OR OTHER MOBILE UNITS EXCEEDING 8 FEET IN HEIGHT, ARE PROHIBITED BY REGULATION OR PERMANENT TERRAIN CONFIGURATIONS OR ARE OTHERWISE NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.

6. FOR RESIDENTIAL DRIVEWAYS ONLY, WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 12 FEET OF CLEARANCE, THE CLEARANCE MAY BE REDUCED TO:

   SERVICES 277 VLG:
   IN-SPAN GROUND CLEARANCE - 10.5 FEET
   DRIP LOOP GROUND CLEARANCE - " "

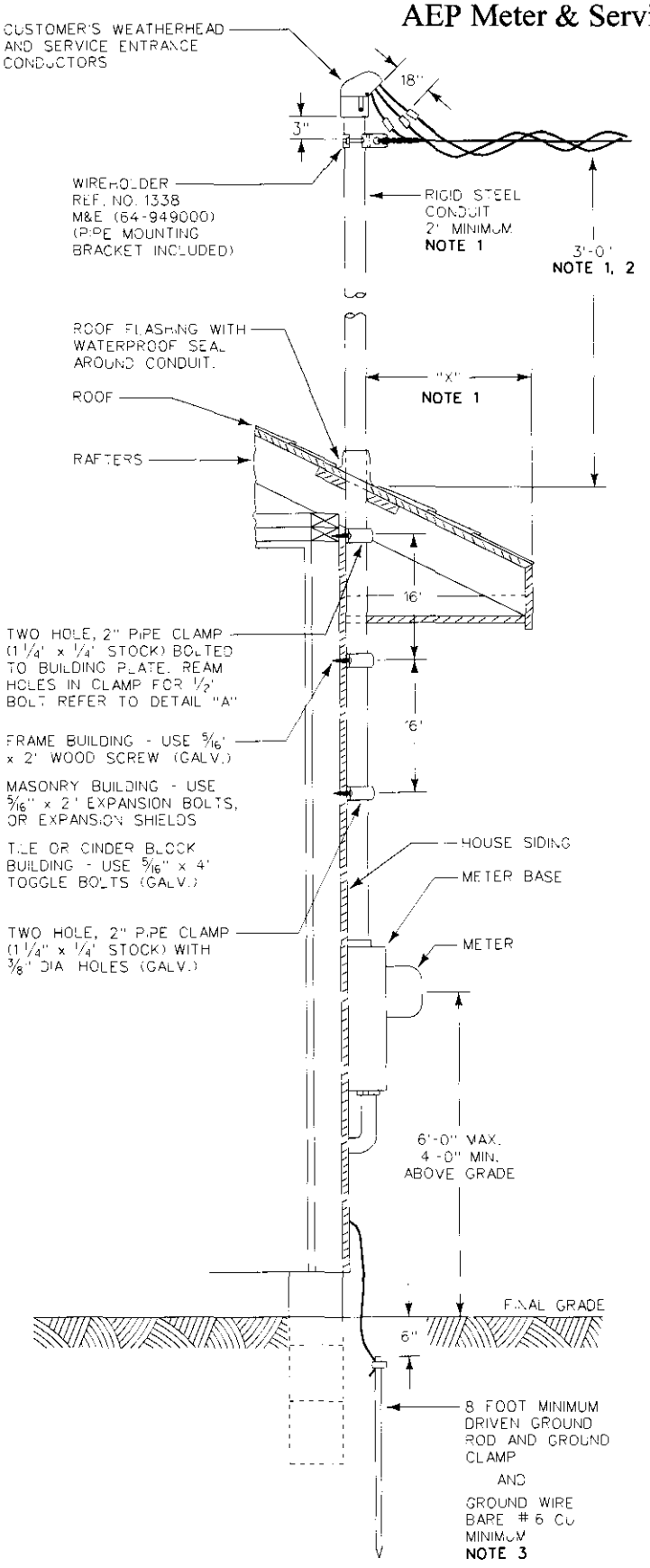
   SERVICES 120 VLG:
   IN-SPAN GROUND CLEARANCE - 10.0 FEET
   DRIP LOOP GROUND CLEARANCE - " "

7. WHERE ROOFS OR BALCONIES ARE NOT READILY ACCESSIBLE AND WHERE VOLTAGE BETWEEN SERVICE CONDUCTORS DOES NOT EXCEED 300 VOLTS OR WHERE CABLES MEETING N.E.S.C. RULE 230C2 OR 230C3 AND VOLTAGE DOES NOT EXCEED 750 VOLTS, CLEARANCE MAYBE REDUCED TO 3.0 FEET.

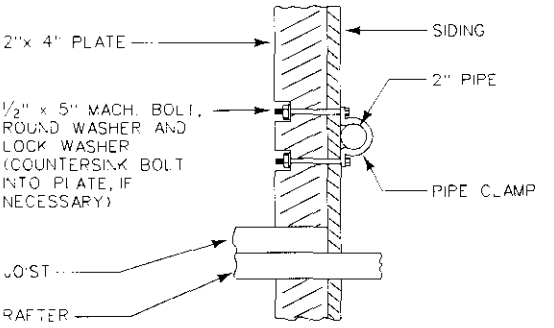
8. CLEARANCE IN ANY DIRECTION FROM THE POOL WATER LEVEL, EDGE OF POOL, BASE OF DIVING PLATFORM OR ANCHORED RAFT. CLEARANCE IN ANY DIRECTION TO A DIVING PLATFORM IS 14 FEET.

SERVICE DROP CABLE CLEARANCES FOR DUPLEX, TRIPLEX AND QUADRUPLE X CONDUCTORS

FIGURE 4



SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES



DETAIL "A"
METHOD OF ATTACHING
2" PIPE TO BUILDING PLATE

GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) DESIGNATING THE LOCATION OF THE SERVICE MAST AND THE METER.

(b) PROVIDING AND INSTALLING THE OVERHEAD SERVICE DROP. THE SERVICE DROP TENSION IS TO BE LIMITED TO 500 LBS. UNDER LOADED CONDITIONS.

(c) PROVIDING THE METER BASE TO THE CUSTOMER WHERE REQUIRED.

(d) INSTALLING AND REMOVING THE METER.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING THE WEATHER HEAD, SERVICE MAST, ROOF FLASHING, BUILDING PLATE ATTACHMENT, BUILDING ATTACHMENTS AND SERVICE ENTRANCE CONDUCTORS. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT FROM WEATHERHEAD A MINIMUM OF 18 INCHES.

(b) PROVIDING A MAST SUPPORT STRONG ENOUGH TO WITHSTAND THE STRAIN IMPOSED BY THE SERVICE DROP.

(c) INSTALLING MAST PIPE THROUGH A 2-3/8" DIA. HOLE IN A 2" x 12" MIN. BLOCK SOLIDLY BETWEEN RAFTERS - USE 3/8" x 4" WOOD SCREWS, FOUR ON EACH SIDE. MINIMUM ALLOWABLE SEPARATION BETWEEN ROOF AND SERVICE ATTACHMENTS MAY BE 1'-6", IF DIMENSION "X" IS 4'-0" OR LESS. MAXIMUM CONDUCTOR FILL IN 2" PIPE IS 3-4/0 CONDUCTORS OR SERVICE ENTRANCE CABLE EQUIVALENT.

(d) PROVIDING AND INSTALLING THE GROUND ROD, GROUND CLAMP AND GROUND WIRE.

(e) PROVIDING, INSTALLING AND MAKING METER CONNECTIONS FOR THE SERVICE ENTRANCE CONDUCTORS OR CABLE. SERVICE ENTRANCE CONDUCTORS.

(f) SECURELY MOUNTING THE POWER COMPANY METER BASE IN A PLUMB POSITION.

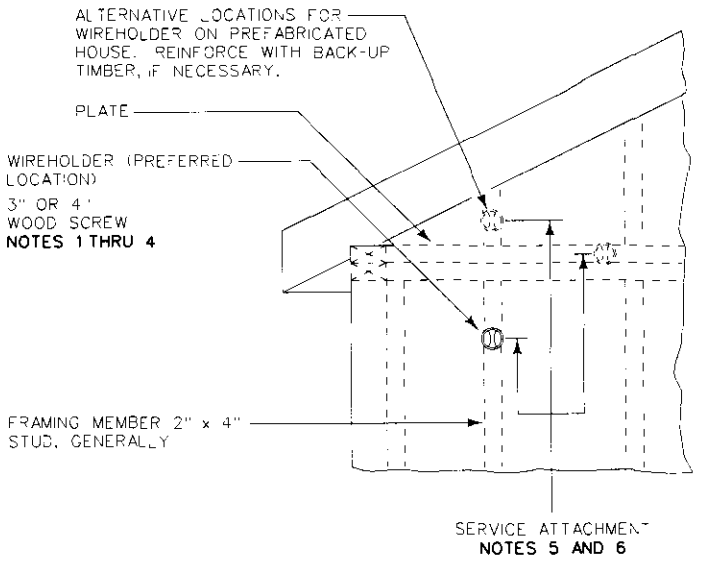
(g) INSTALLATION OF EQUIPMENT TO BE IN ACCORDANCE WITH POWER COMPANY STANDARDS AND/OR LOCAL ORDINANCES OR CODES.

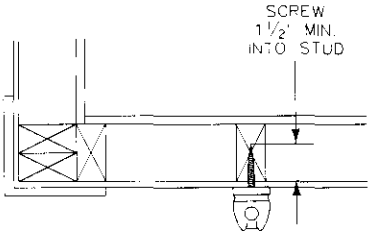
GENERAL CONSTRUCTION NOTES:

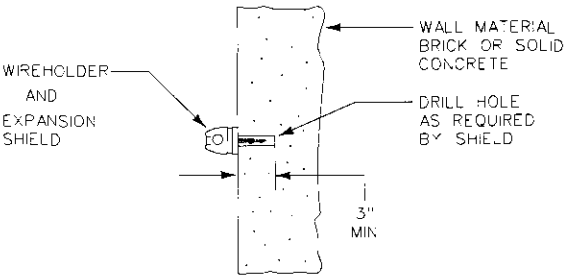
1. SERVICE MAST TO BE USED WHERE IT IS IMPOSSIBLE TO ATTACH WIREHOLDERS TO THE BUILDING WALL AND MAINTAIN PROPER CLEARANCE ACCORDING TO FIG. 4. FOR PROPER ROOF TO SERVICE ATTACHMENT CLEARANCES, REFER TO CUSTOMER RESPONSIBILITY (c). ONLY POWER SERVICE CONDUCTORS ARE ALLOWED TO CONTACT THE SERVICE MAST. NEC (230-28).
2. MINIMUM HEIGHT OF 18", MAXIMUM HEIGHT OF 36" WITHOUT GUYING.
3. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS. IN ARKANSAS, OKLAHOMA, LOUISIANA, AND TEXAS, THE GROUND WIRE SHALL BE CONNECTED IN THE METER SOCKET.

SERVICE ATTACHMENT TO MAST
OF LOW PROFILE OR OTHER BUILDING

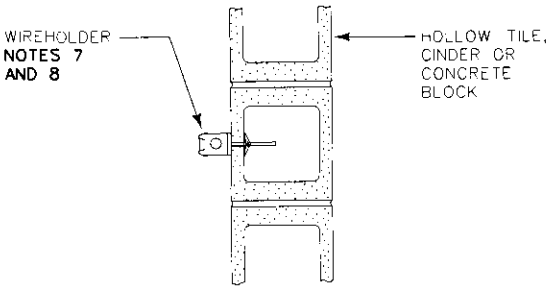
FIGURE 5







MASONRY



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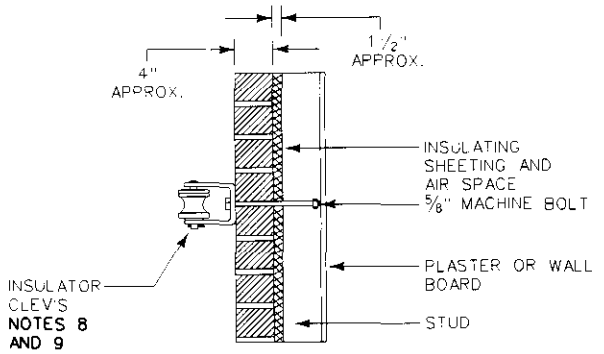


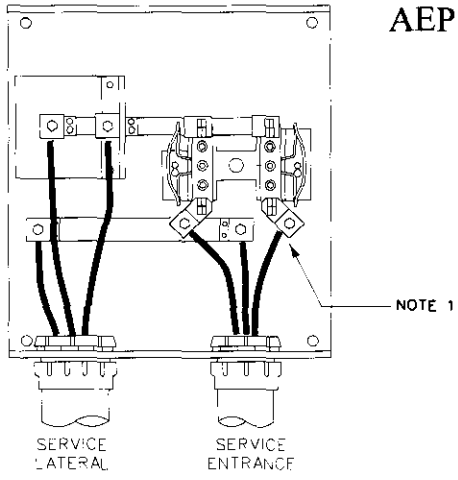
BRICK

NOTES:

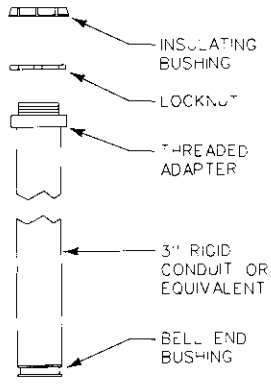
1. SELECTION OF A 3 OR 4 INCH SCREW LENGTH IS DEPENDENT ON THE THICKNESS OF MATERIAL (FACING, INSULATION - ETC.) WHICH MUST BE PENETRATED BEFORE A SOLID FRAMING MEMBER IS ENCOUNTERED.
2. DRILL A 7/32" DIAMETER HOLE INTO THE WALL STUD BEFORE INSTALLING WIREHOLDERS (TO AVOID SPLITTING THE WOOD OR BREAKING THE WIREHOLDER). WIREHOLDER SCREW MUST BE INSTALLED AS FAR AS POSSIBLE SO THAT WIREHOLDER IS TIGHT AND FLUSH WITH OUTSIDE FRAME SURFACE. AT LEAST 1½" OF SCREW MUST PENETRATE THE STUD.
3. FOR PREFABRICATED HOUSES - WHERE THE STUD IS GENERALLY 2" X 2", CUT THE WIREHOLDER SCREW TO THE REQUIRED LENGTH WITH BOLT CUTTERS IF GROUND CLEARANCES PERMIT SERVICE DROP TO BE ATTACHED BELOW CEILING LINE. OTHERWISE, USE ALTERNATIVE WIREHOLDER LOCATIONS SHOWN OR USE A SERVICE MAST, REFER TO FIG. 5.
4. STRUCTURE LOADING AT WIREHOLDER:
   (a) FOR #4, #2 AWG AND 1/0 SERVICE DROP CABLE - STRUCTURE TO WITHSTAND A MINIMUM PULL OF 1000 LBS. PER WIREHOLDER.
   (b) FOR 4/0 AWG SERVICE DROP CABLE - STRUCTURE TO WITHSTAND A MINIMUM PULL OF 1500 LBS. PER WIREHOLDER.
5. THE SERVICE ATTACHMENT SHALL BE INSTALLED AT A HEIGHT THAT MAINTAINS REQUIRED CLEARANCES FOR SERVICE DROP CONDUCTORS. FOR CLEARANCES, REFER TO FIG 4.
6. SERVICE MAST TO BE USED WHERE IT IS IMPOSSIBLE TO ATTACH WIREHOLDER TO BUILDING WALL AND MAINTAIN PROPER CLEARANCES TO GROUND. A SERVICE MAST FOR A RESIDENCE IS REQUIRED TO PROVIDE THE REDUCED CLEARANCES OVER RESIDENTIAL DRIVEWAYS AS SHOWN IN FIG. 4.
7. COAT ALL METAL PARTS OF THESE SERVICE DROP ATTACHMENTS WITH CORROSION-INHIBITING GREASE (WITHOUT METALLIC PARTICLES) BEFORE INSTALLING THEM IN MASONRY OR CINDER BLOCKS.
8. NEW CONSTRUCTION - FURNISH CUSTOMER OR CONTRACTOR WITH PROPER WIREHOLDER OR INSULATOR CLEVIS SO THAT SERVICE ATTACHMENT CAN BE INSTALLED AT A SUITABLE LOCATION (DESIGNATED BY THE POWER COMPANY) BY THE CONTRACTOR DURING CONSTRUCTION OF THE BUILDING.
9. FOR BRICK BUILDINGS OF RELATIVELY SOFT BRICK, INSTALL THE WIREHOLDER SCREW IN THE MORTAR BETWEEN THE BRICKS.

SERVICE DROP ATTACHMENTS AT BUILDING

FIGURE 6

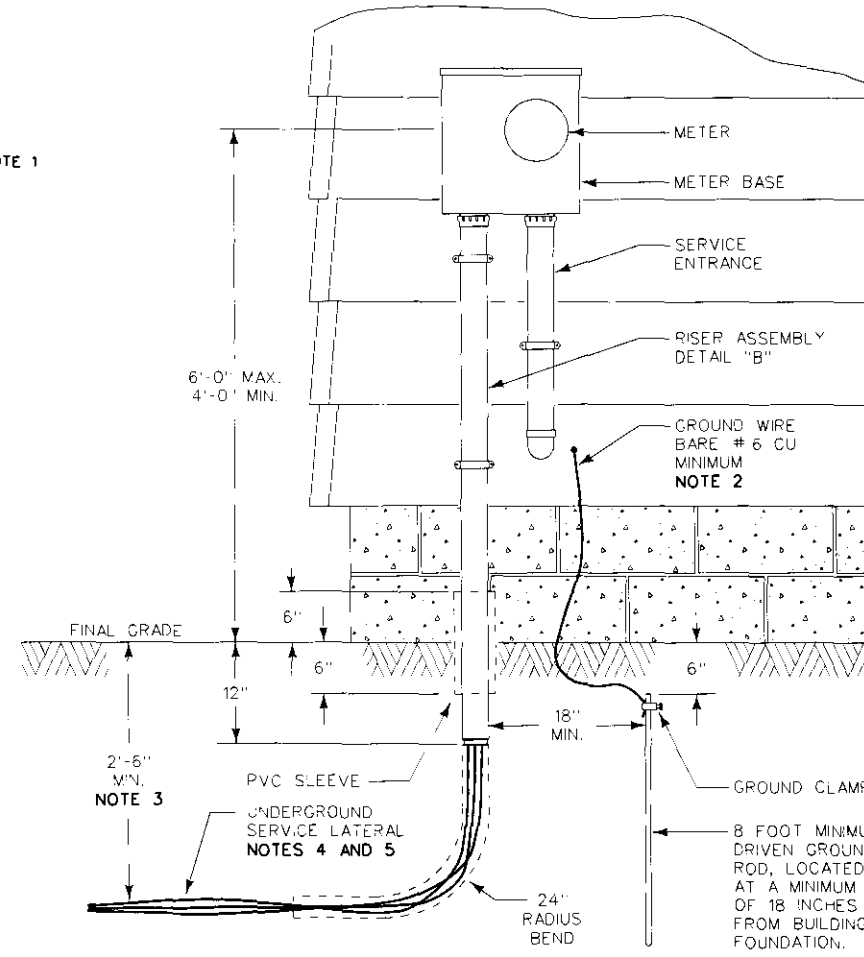


DETAIL "A"
METER BASE



DETAIL "B"
RISER ASSEMBLY

SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES



GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) DESIGNATING THE LOCATION FOR THE TRENCH AND THE METER.

(b) PROVIDING AND INSTALLING THE UNDERGROUND SERVICE LATERAL IN SERVICE TERRITORIES WHERE REQUIRED.

(c) PROVIDING THE METER BASE TO THE CUSTOMER WHERE REQUIRED.

(d) INSTALLING AND REMOVING THE METER.

(e) MAKING THE CONNECTIONS IN THE METER BASE FOR THE UNDERGROUND SERVICE LATERAL (DETAIL A).

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING AND INSTALLING THE RISER ASSEMBLY. RISER ASSEMBLY TO CONSIST OF AN INSULATING BUSHING, LOCKNUT, THREADED ADAPTER, GALVANIZED OR SCHEDULE 80 PVC CONDUIT WITH BELL END AND CLAMP.

(b) PROVIDING AND INSTALLING THE GROUND ROD, GROUND CLAMP AND GROUND WIRE.

(c) PROVIDING, INSTALLING AND MAKING METER CONNECTIONS FOR THE SERVICE ENTRANCE CABLE.

(d) SECURELY MOUNTING THE POWER COMPANY METER BASE IN A PLUMB POSITION.

(e) INSTALLING A PVC SLEEVE WITH AN INNER DIAMETER ¼ INCH LARGER THAN THE RISER ASSEMBLY. THIS PVC SLEEVE IS TO BE INSTALLED WHEN CONCRETE OR ASPHALT IS TO BE INSTALLED AROUND THE RISER ASSEMBLY.

(f) INSTALLATION OF EQUIPMENT TO BE IN ACCORDANCE WITH POWER COMPANY STANDARDS AND/OR LOCAL ORDINANCES OR CODES.

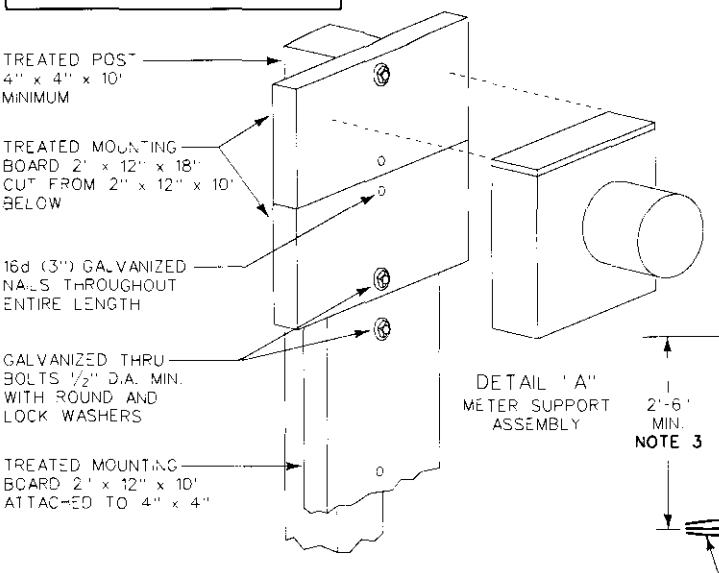
GENERAL CONSTRUCTION NOTES:

1. ELECTRICAL JOINT COMPOUND SUITABLE FOR USAGE WITH ALUMINUM CONDUCTORS SHALL BE APPLIED TO THESE CONDUCTORS BEFORE INSTALLING IN TERMINALS OF METER SOCKET.
2. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS. IN ARKANSAS, OKLAHOMA, LOUISIANA, AND TEXAS, THE GROUND WIRE SHALL BE CONNECTED IN THE METER SOCKET.
3. BURIAL DEPTH IS DEFINED AS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. SECONDARY OR SERVICE CABLES SHALL BE INSTALLED AT A BURIAL DEPTH OF NOT LESS THAN 2'-6". IT IS RECOMMENDED THAT SECONDARY OR SERVICE CABLES MAINTAIN A BURIED DEPTH OF AT LEAST 2'-0"; THE INITIAL 2'-6" BURIAL DEPTH IS TO ALLOW FOR CHANGES IN SURFACE CONDITIONS.
4. IF THE CUSTOMER DOES THE TRENCHING, THE TRENCH IS TO EXTEND NO CLOSER TO THE POWER COMPANY'S TRANSFORMER OR PEDESTAL THAN A DISTANCE SPECIFIED BY THE POWER COMPANY. CUSTOMER TO DETERMINE LOCATION OF ALL UTILITIES BEFORE TRENCHING.
5. ADDITIONAL PVC CONDUIT AND A 24 INCH BEND MAY BE INSTALLED IN ORDER TO EXTEND CONDUIT BEYOND ANY GROUND LEVEL OBSTRUCTION (PATIO, DECK, DRIVEWAY ,WALKWAY, ETC.). IF ADDITIONAL PVC CONDUIT IS REQUIRED TO CLEAR OBSTRUCTIONS, REFER TO POWER COMPANY FOR APPROVED PVC USAGE.

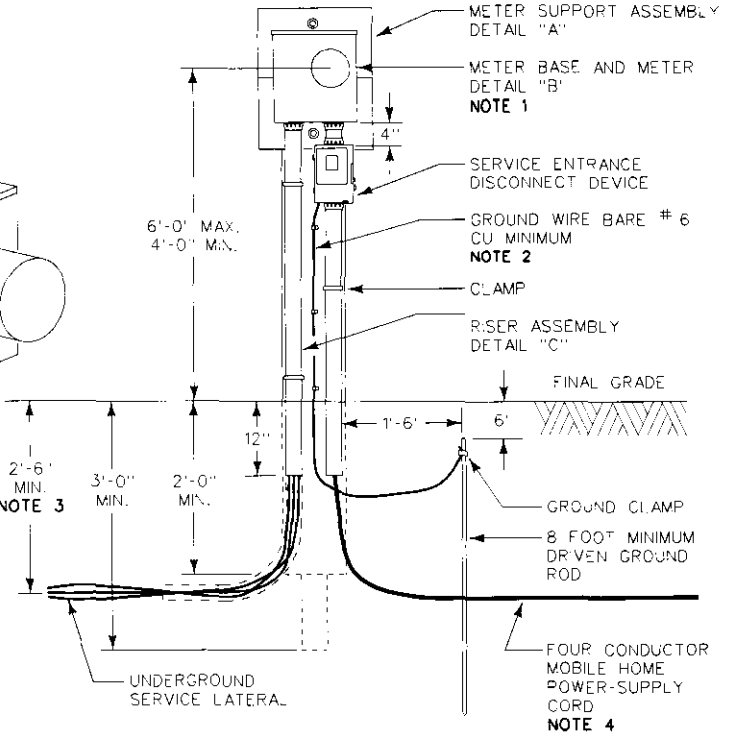
SINGLE PHASE UNDERGROUND SERVICE METER INSTALLATION

FIGURE 7

SEE GENERAL CONDITION NOTES FOR POWER COMPANY AND CUSTOMER RESPONSIBILITIES



DETAIL "A"
METER SUPPORT ASSEMBLY



GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) SPECIFYING THE SERVICE POST LOCATION. NOTE: THE NATIONAL ELECTRICAL CODE (NEC) RECOMMENDS THAT THE SERVICE EQUIPMENT BE "IN SIGHT FROM" AND WITHIN 30 FEET OF THE MOBILE HOME. FOR RECREATIONAL VEHICLE SITE, REFER TO ARTICLE 551.77 OF THE NEC.

(b) INSTALLING AND REMOVING THE METER.

(c) PROVIDING AND INSTALLING THE UNDERGROUND SERVICE LATERAL IN SERVICE TERRITORIES WHERE REQUIRED.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) PROVIDING GROUNDING IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS. GROUND SHALL BE CONNECTED IN METER ENCLOSER OR CUSTOMER SWITCH.

(b) PROVIDING AND SECURELY INSTALLING THE METER POST AND EQUIPMENT MOUNTING BOARD WITH THE FOLLOWING REQUIREMENTS:

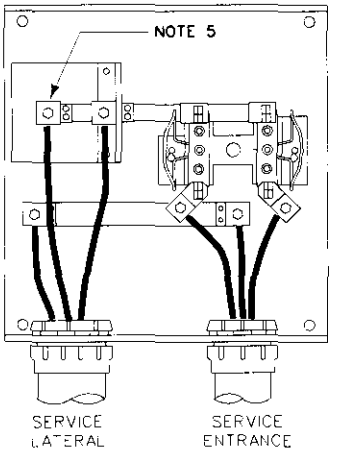
1. TREATED WITH AN EPA REGISTERED PRESERVATIVE.
2. METER POST WITH DIMENSIONS AS SHOWN, WITH THE TOP CUT AT ANGLE AWAY FROM MOUNTING BOARD FOR WATER DRAINAGE.
3. EQUIPMENT MOUNTING BOARD WITH DIMENSIONS AS SHOWN, FOR MOUNTING THE METERING AND SERVICE EQUIPMENT DEVICES. MOUNTING BOARD TO BE NAILED (SIZE 20d) TO METER POST EVERY 16 INCHES WITH ADDITIONAL THRU BOLTS LOCATED AS SHOWN. SERVICE ENTRANCE CONDUCTORS OR CABLES NOT TO EXIT THROUGH REAR OF METER BASE.
4. SECURELY MOUNTING THE METER BASE IN A LEVEL AND PLUMB POSITION. METER MUST FACE STREET OR ACCESS WALKWAY.

(c) PROVIDING AND INSTALLING THE SERVICE EQUIPMENT DISCONNECT DEVICE. TYPICAL CONFIGURATION SHOWN (OTHER CONFIGURATIONS AVAILABLE). THE DISCONNECT DEVICE IS TO HAVE OVERCURRENT PROTECTION AND TO BE IN A WEATHERPROOF ENCLOSURE. CUSTOMER TO SELECT NEC APPROVED EQUIPMENT BEST SUITED TO THEIR NEEDS.

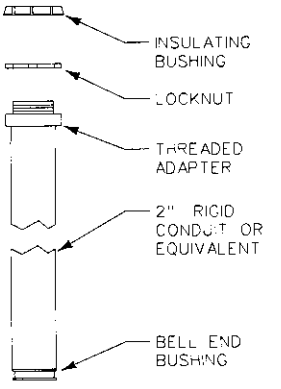
(d) PROVIDING AND SECURELY INSTALLING THE SERVICE LATERAL CONDUIT, SERVICE ENTRANCE CONDUIT AND POWER SUPPLY CORD IN ACCORDANCE WITH NEC AND LOCAL CODES. NON-METALLIC CONDUIT PERMITTED IF INSTALLED IN ACCORDANCE WITH ARTICLE 352 OF THE NEC AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

GENERAL CONSTRUCTION NOTES:

1. THIS INSTALLATION IS ALSO FOR MOBILE HOMES IN PARKS.
2. CUSTOMER IS TO SIZE GROUND WIRE ACCORDING TO NEC REQUIREMENTS.



DETAIL "B"
METER BASE



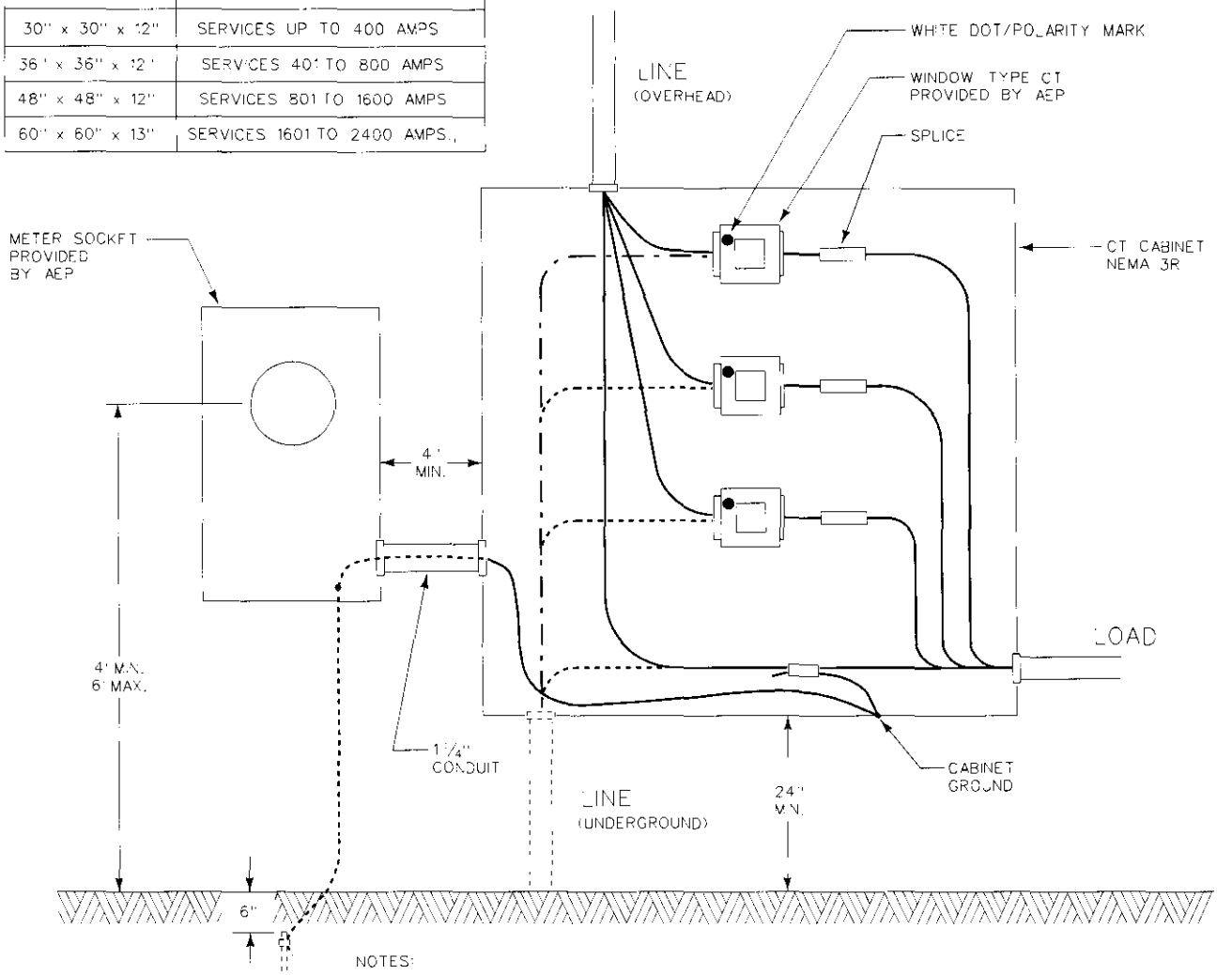
DETAIL "C"
RISER ASSEMBLY

3. BURIAL DEPTH IS DEFINED AS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. SECONDARY OR SERVICE CABLES SHALL BE INSTALLED AT A BURIAL DEPTH OF NOT LESS THAN 2'-6". IT IS RECOMMENDED THAT SECONDARY OR SERVICE CABLES MAINTAIN A BURIED DEPTH OF AT LEAST 2'-0"; THE INITIAL 2'-6" BURIAL DEPTH IS TO ALLOW FOR CHANGES IN SURFACE CONDITIONS. CUSTOMER SHALL FOLLOW LOCAL POWER COMPANY GUIDELINES IF TRENCHING SERVICE LATERALS. IF ADDITIONAL PVC CONDUIT IS REQUIRED TO CLEAR OBSTRUCTIONS, REFER TO POWER COMPANY FOR APPROVED PVC USAGE.
4. BURIAL DEPTH TO COMPLY WITH LOCAL CODES. 2'-0" MIN. IS CONSIDERED ADEQUATE BY ARTICLE 300-5 OF THE NEC. A GROUNDING AS WELL AS A GROUNDED CONDUCTOR MUST EXTEND BETWEEN THE MOBILE HOME AND ITS ADJACENT SERVICE EQUIPMENT. NEITHER THE FRAME OF THE MOBILE HOME NOR THE FRAME OF ANY DISTRIBUTION PANEL OR APPLIANCE MAY BE CONNECTED TO THE NEUTRAL (GROUNDED) CONDUCTOR IN THE MOBILE HOME. THE GROUNDING AND GROUNDED CONDUCTORS ARE BONDED TOGETHER ONLY ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT DEVICE. REFER TO ARTICLE 550.16 OF THE NEC - GROUNDING.
5. ELECTRICAL JOINT COMPOUND SUITABLE FOR USAGE WITH ALUMINUM CONDUCTORS SHALL BE APPLIED TO THESE CONDUCTORS BEFORE INSTALLING IN TERMINALS OF METER SOCKET.

SINGLE MOBILE HOME UNDERGROUND SERVICE

FIGURE 8

MINIMUM CABINET SIZE	
25" x 25" x 12"	FOR SINGLE PHASE
30" x 30" x 12"	SERVICES UP TO 400 AMPS
36" x 36" x 12"	SERVICES 401 TO 800 AMPS
48" x 48" x 12"	SERVICES 801 TO 1600 AMPS
60" x 60" x 13"	SERVICES 1601 TO 2400 AMPS.,

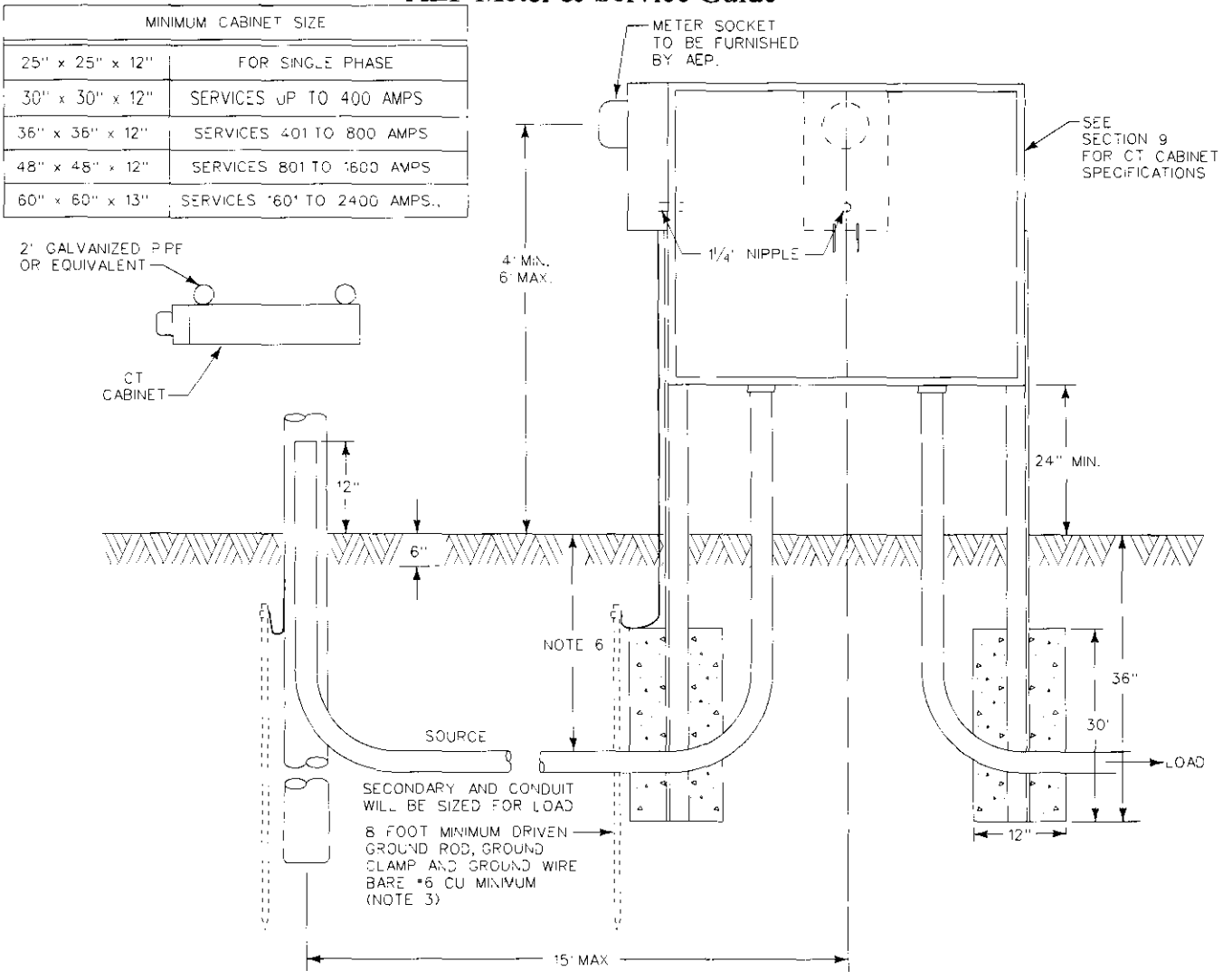


NOTES:

1. CT CABINET FURNISHED AND INSTALLED BY CUSTOMER SHALL BE OF SUBSTANTIAL STRENGTH WITH CORROSION PROTECTION, SUCH AS PAINTED GALVANIZED STEEL NEMA 3R. ALUMINUM OR FIBER REINFORCED POLYESTER ENCLOSURES MUST BE USED IN CORROSIVE AREAS. IT SHALL HAVE PROVISIONS FOR INSTALLING AN AEP PADLOCK AND SEAL. THE INSIDE BACK OF THE CABINET SHALL BE ENTIRELY COVERED BY ¾" TREATED PLYWOOD FOR MOUNTING THE CURRENT TRANSFORMERS OR SUITABLE MOUNTING BRACKETS MAY BE PROVIDED. A GROUNDING LUG SHALL BE PROVIDED TO GROUND THE CABINET.
2. THE WHITE DOT POLARITY MARK ON THE CT SHALL BE TOWARD THE ENERGY SOURCE OR LINE SIDE.
3. CUSTOMER SHOULD MOUNT THE METER SOCKET OR CABINET NEXT TO THE CT CABINET AND INSTALL 1¼" CONDUIT BETWEEN THE TWO. IF THE METER SOCKET CANNOT BE INSTALLED NEXT TO THE CT CABINET, IT MAY BE LOCATED UP TO 20 FEET AWAY WITH AEP METER SERVICES APPROVAL. 1¼" CONDUIT SHALL CONNECT THE SOCKET AND CT CABINET.
4. THE CT CABINET AND METER SOCKET SHALL BE GROUNDED. THE METER SOCKET AND CT CABINET SHALL BE BONDED THROUGH A SEPARATE EQUIPMENT-GROUNDING CONDUCTOR CONNECTED TO THE GROUNDED SERVICE CONDUCTOR (USUALLY THE NEUTRAL). IF A GROUNDED SERVICE CONDUCTOR DOES NOT EXIST THEN GROUNDING AND BONDING OF METERING EQUIPMENT MUST BE ESTABLISHED THROUGH A GROUNDING ELECTRODE SYSTEM ESTABLISHED AT THE POINT OF SERVICE. IN SOME JURISDICTIONS THE GROUNDING OF THE METER SOCKET AND INSTRUMENT TRANSFORMER ENCLOSURE WILL BE SUPPLEMENTED WITH THE USE OF A DRIVEN GROUND ROD IN ADDITION TO BONDING TO THE GROUNDED SERVICE CONDUCTOR.
5. AEP WILL INSTALL THE SECONDARY WIRING BETWEEN THE CT AND THE METER SOCKET.
6. THE CONDUCTOR SPLICE SHALL BE MADE WITH BOLTED CONNECTIONS FURNISHED AND INSTALLED BY CUSTOMER WHERE REQUIRED. IN AEP TEXAS NORTH AND CENTRAL WHERE THE CUSTOMER OWNS AND INSTALLS BOTH THE LINE AND LOAD CONDUCTORS, THE CONDUCTOR SHALL PASS THROUGH THE CT'S WITHOUT SPLICE.

CURRENT TRANSFORMER CABINETS
OVERHEAD OR UNDERGROUND SERVICE
WINDOW TYPE CT'S
FIGURE 9

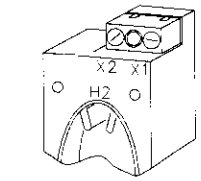
MINIMUM CABINET SIZE	
25" x 25" x 12"	FOR SINGLE PHASE
30" x 30" x 12"	SERVICES UP TO 400 AMPS
36" x 36" x 12"	SERVICES 401 TO 800 AMPS
48" x 48" x 12"	SERVICES 801 TO 1600 AMPS
60" x 60" x 13"	SERVICES 1600 TO 2400 AMPS.,



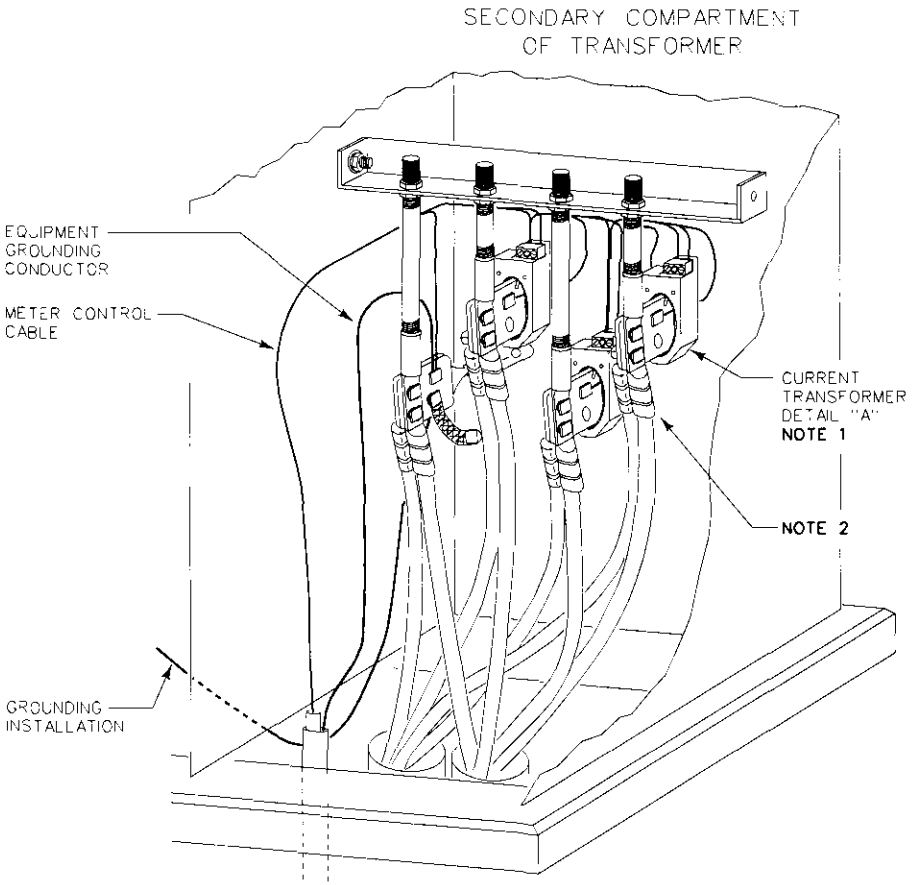
NOTES:

1. THE WHITE DOT POLARITY MARK ON THE CT SHALL BE TOWARD THE ENERGY SOURCE OR LINE SIDE.
2. CUSTOMER SHOULD MOUNT THE METER SOCKET ON THE CT CABINET AND INSTALL 1¼" NIPPLE BETWEEN THE TWO.
3. THE CT CABINET AND METER SOCKET SHALL BE GROUNDED. THE METER SOCKET AND CT CABINET SHALL BE BONDED THROUGH A SEPARATE EQUIPMENT-GROUNDING CONDUCTOR CONNECTED TO THE GROUNDED SERVICE CONDUCTOR (USUALLY THE NEUTRAL). IF A GROUNDED SERVICE CONDUCTOR DOES NOT EXIST THEN GROUNDING AND BONDING OF METERING EQUIPMENT MUST BE ESTABLISHED THROUGH A GROUNDING ELECTRODE SYSTEM ESTABLISHED AT THE POINT OF SERVICE. IN SOME JURISDICTIONS THE GROUNDING OF THE METER SOCKET AND INSTRUMENT TRANSFORMER ENCLOSURE WILL BE SUPPLEMENTED WITH THE USE OF A DRIVEN GROUND ROD IN ADDITION TO BONDING TO THE GROUNDED SERVICE CONDUCTOR.
4. AEP WILL INSTALL THE METER CONTROL CABLE BETWEEN THE CT AND THE METER SOCKET.
5. THE CONDUCTOR SPLICE SHALL BE MADE WITH BOLTED CONNECTIONS FURNISHED AND INSTALLED BY CUSTOMER WHERE REQUIRED. IN AEP TEXAS NORTH AND CENTRAL WHERE THE CUSTOMER OWNS AND INSTALLS BOTH THE LINE AND LOAD CONDUCTORS, THE CONDUCTOR SHALL PASS THROUGH THE CT'S WITHOUT SPLICE.
6. BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. THE POWER COMPANY SHALL SPECIFY THE REQUIRED BURIAL DEPTH TO CONFORM TO LOCAL REQUIREMENTS. UNLESS ADDITIONAL BURIAL DEPTH IS SPECIFIED BY THE POWER COMPANY, THE BURIAL DEPTH SHALL NOT BE LESS THAN 2'-6".
7. THE POWER COMPANY WILL BE RESPONSIBLE FOR: DESIGNATING THE LOCATION FOR THE TRENCH AND THE METER, PROVIDING AND INSTALLING THE UNDERGROUND SERVICE LATERAL IN SERVICE TERRITORIES WHERE REQUIRED, PROVIDING THE METER BASE TO THE CUSTOMER WHERE REQUIRED.
8. THE CUSTOMER WILL BE RESPONSIBLE FOR: PROVIDING AND INSTALLING THE RISER ASSEMBLY. RISER ASSEMBLY TO CONSIST OF AN INSULATING BUSHING, LOCKNUT, THREADED ADAPTER, GALVANIZED OR SCHEDULE 80 PVC CONDUIT WITH BELL END AND CLAMP. INSTALLATION OF EQUIPMENT TO BE IN ACCORDANCE WITH POWER COMPANY STANDARDS, AND/OR LOCAL ORDINANCES OR CODES.

CURRENT TRANSFORMER CABINET
FREE STANDING OVERHEAD TO UNDERGROUND SERVICE
FIGURE 10

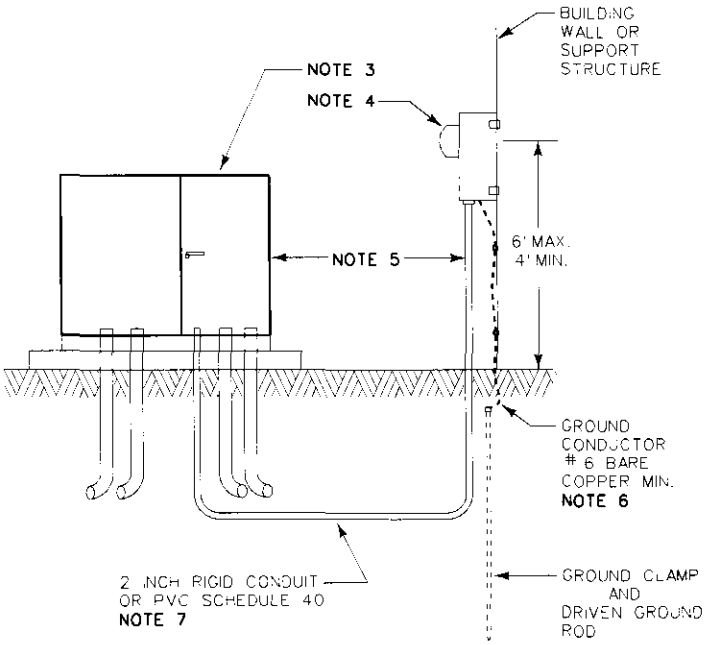


DETAL "A"
CURRENT TRANSFORMER
TERMINALS



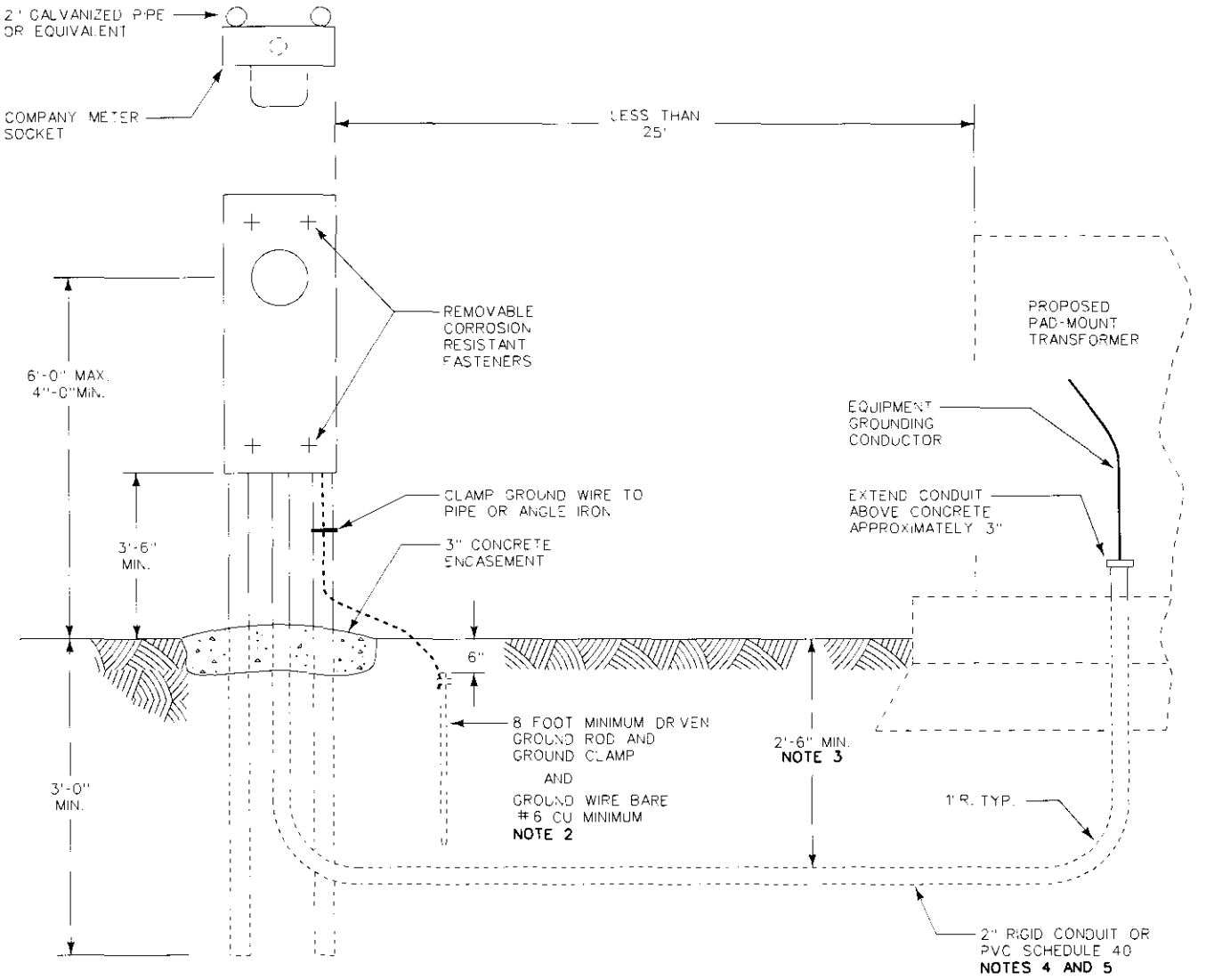
NOTES:

1. INSTRUMENT TRANSFORMERS (CTS) ARE FURNISHED AND INSTALLED BY POWER COMPANY PRIOR TO CONNECTION OF CUSTOMER SERVICE CABLES.
2. CUSTOMER SHALL PROVIDE NEMA TYPE TERMINAL LUGS FOR CUSTOMER OWNED SERVICE CONDUCTORS WHERE REQUIRED. POWER COMPANY TO SECURE CABLE TERMINATIONS. STACKING LUGS MAY BE REQUIRED TO ACCOMMODATE THE NUMBER OF SERVICE CONDUCTORS PER TRANSFORMER BUSHING.
3. THIS STANDARD IS APPLICABLE FOR A SINGLE CUSTOMER PAD-MOUNTED TRANSFORMER.
4. POWER COMPANY PROVIDES METER SOCKET TO BE INSTALLED BY CUSTOMER, OR CONTRACTOR, IN A PLUMB POSITION AT LOCATION, USING REMOVABLE CORROSION RESISTANT FASTENERS, REFER TO FIG. 11.
5. TRANSFORMER PAD LOCATION AND LOCATION OF CONDUITS FOR CONDUCTOR/METER CONTROL CABLE TO BE SPECIFIED BY AEP. THE METER LOCATION IS TO BE WITHIN 25 FEET OF THE TRANSFORMER PAD LOCATION. WHEN THE BUILDING IS LOCATED AT A DISTANCE GREATER THAN 25 FEET FROM THE TRANSFORMER PAD LOCATION, THE METER IS TO BE MOUNTED ON A SUPPORT STRUCTURE AT A LOCATION WHERE THE DISTANCE FROM THE TRANSFORMER PAD LOCATION IS NOT GREATER THAN 25 FEET. SEE FIGURE 1 FOR FREE STANDING METERING FACILITIES REQUIREMENTS.
6. THE METER SOCKET SHALL BE GROUNDED. THE METER SOCKET SHALL BE BONDED THROUGH A SEPARATE EQUIPMENT-GROUNDING CONDUCTOR CONNECTED TO THE GROUNDED SERVICE CONDUCTOR (USUALLY THE NEUTRAL). IN SOME JURISDICTIONS THE GROUNDING OF THE METER SOCKET WILL BE SUPPLEMENTED WITH THE USE OF A DRIVEN GROUND ROD IN ADDITION TO BONDING TO THE GROUNDED SERVICE CONDUCTOR.
7. SCHEDULE 80 RIGID CONDUIT REQUIRED FOR DRIVEWAYS AND PARKING LOTS.



PAD-MOUNT TRANSFORMER METERING INSTALLATION

FIGURE 11



GENERAL CONDITION NOTES:

THE POWER COMPANY WILL BE RESPONSIBLE FOR:

(a) FURNISHING DESIGN SHORT CIRCUIT VALUE IF REQUIRED.

(b) FURNISHING THE METER SOCKET TO CUSTOMER

(c) INSTALLING AND REMOVING THE METER.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

(a) FURNISHING AND INSTALLING THE METER STRUCTURE AS SHOWN ABOVE.

(b) FURNISHING AND INSTALLING THE METER CONDUIT TO THE PAD-MOUNT TRANSFORMER.

(c) INSTALLING METER SOCKET AT LOCATION USING REMOVABLE CORROSION RESISTANT FASTENERS.

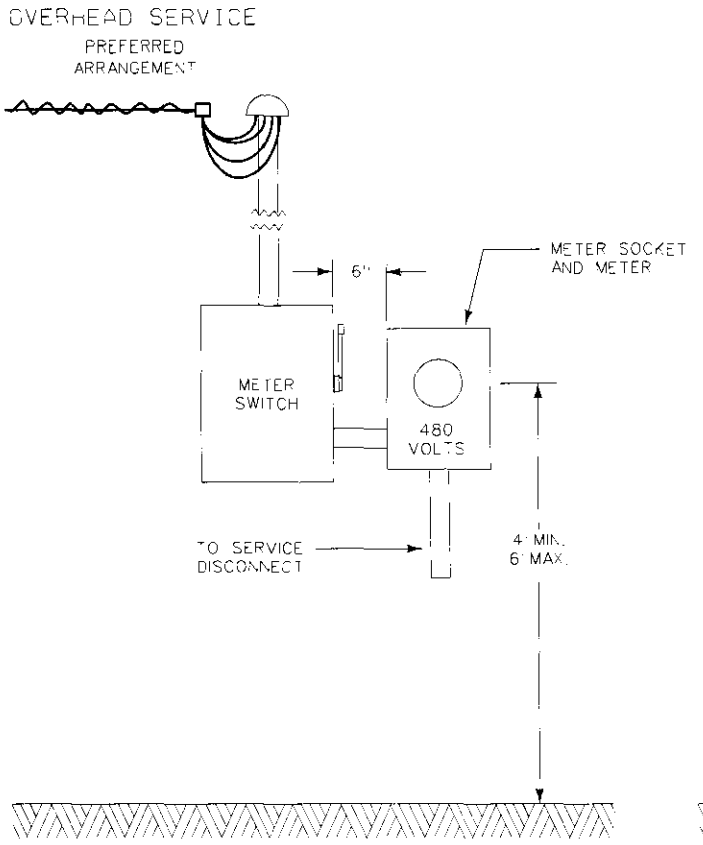
(d) INSTALLING GALVANIZED SUPPORT PIPES WHICH SHALL BE CAPPED OR FILLED WITH CONCRETE.

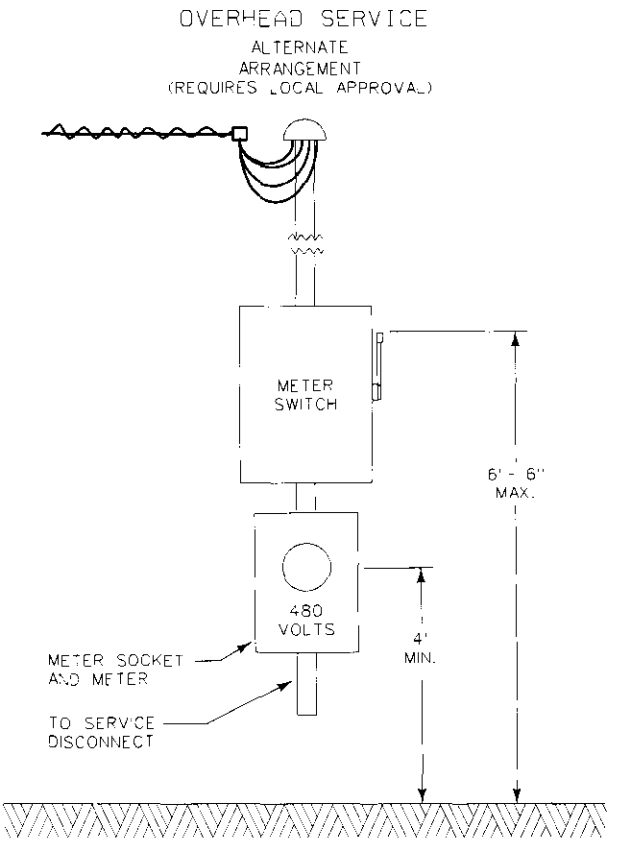
GENERAL CONSTRUCTION NOTES:

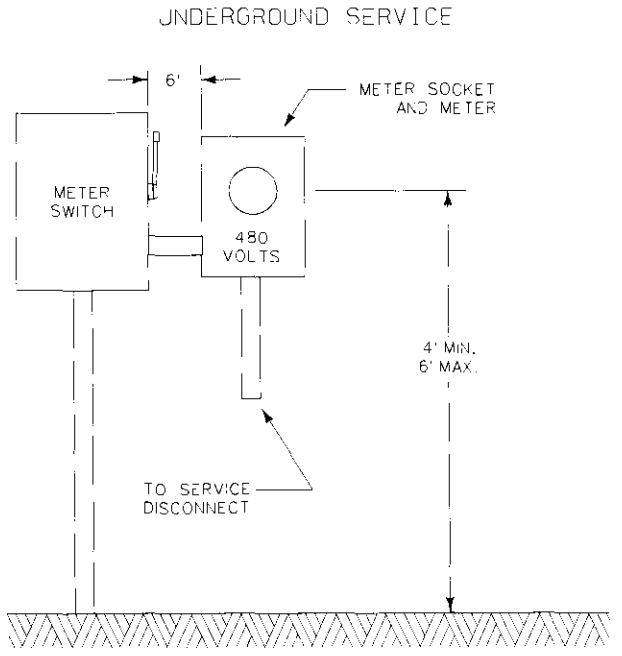
1. THIS DESIGN IS FOR FREE STANDING METER TRIM LOCATED ADJACENT TO A PAD-MOUNT TRANSFORMER. METER TRIM MAY BE MOUNTED ON THE BUILDING, IF THE BUILDING IS LOCATED LESS THAN 25 FEET FROM THE TRANSFORMER. DISTANCES GREATER THAN 25 FEET MUST BE APPROVED BY METER SERVICES.
2. IN SOME JURISDICTIONS THE GROUNDING OF THE METER SOCKET WILL BE SUPPLEMENTED WITH THE USE OF A DRIVEN GROUND ROD IN ADDITION TO BONDING TO THE GROUNDED SERVICE CONDUCTOR.
3. THE METER SOCKET SHALL BE GROUNDED. THE METER SOCKET SHALL BE BONDED THROUGH A SEPARATE EQUIPMENT-GROUNDING CONDUCTOR CONNECTED TO THE GROUNDED SERVICE CONDUCTOR (USUALLY THE NEUTRAL).
4. IF THE CUSTOMER DOES THE TRENCHING, THE TRENCH IS TO EXTEND NO CLOSER TO THE POWER COMPANY'S TRANSFORMER OR PEDESTAL THAN A DISTANCE SPECIFIED BY THE POWER COMPANY. CUSTOMER TO DETERMINE LOCATION OF ALL UTILITIES BEFORE TRENCHING.
5. SCHEDULE 80 RIGID CONDUIT REQUIRED FOR DRIVEWAYS AND PARKING LOTS.

METER INSTALLATION
FROM PAD-MOUNT TRANSFORMER
USING BUSHING TYPE CT'S

FIGURE 12





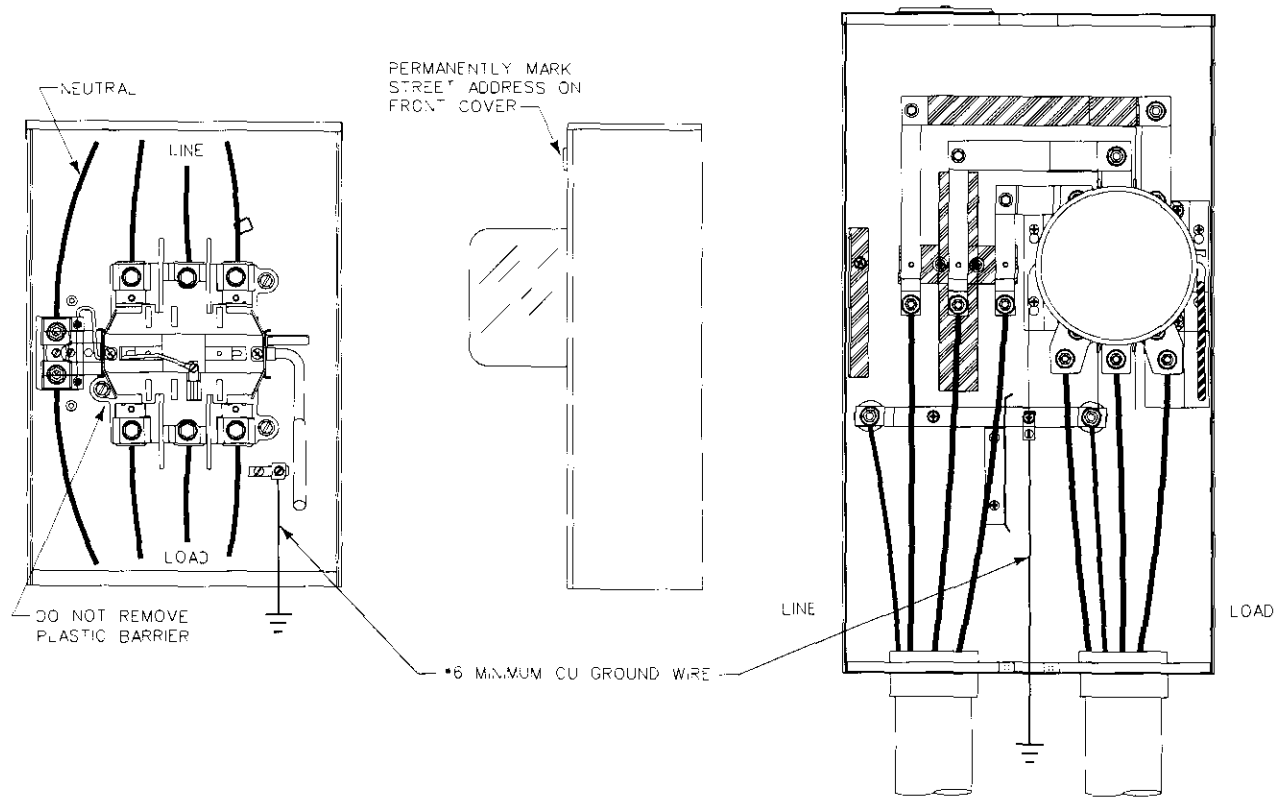


NOTES:

1. METER SWITCH SUPPLIED AND INSTALLED BY CUSTOMER WITH NO OVERCURRENT DEVICE. ENCLOSURE TO BE LOCKED AND SEALED UNDER THE EXCLUSIVE CONTROL OF THE POWER COMPANY.
2. METER SOCKET SECURELY MOUNTED IN PLUMB POSITION BY CUSTOMER. SERVICE ATTACHMENT AND METERING INSTALLATION LOCATION TO BE SPECIFIED BY POWER COMPANY.
3. METER SWITCH & METER SOCKET ENCLOSURES SHALL BE GROUNDED.
4. THE CUSTOMER'S MAIN SWITCH SHALL BE GROUNDED.
5. OVERHEAD SERVICE ATTACHMENT HEIGHT PER FIG. 4.
6. FOR UNDERGROUND SERVICE INSTALLATIONS SEE FIG. 7.
7. METER DISCONNECT MUST BE OPEN WHEN INSTALLING OR REMOVING THE METER.

ALL 480 VOLT, 225 AMP & BELOW SERVICE
SELF CONTAINED METERING WITH METER DISCONNECT

FIGURE 13



THREE PHASE 4 WIRE 200 AMP
SOCKET METER BOX WITH
BY-PASS SWITCH

THREE PHASE 4 WIRE 320 AMP
SOCKET METER BOX WITH
BY-PASS SWITCH

NOTES:

1. FOR SERVICE TYPE REFER TO FIGURES 19, 20, & 21.
2. DO NOT REMOVE PLASTIC BARRIER COVERING LINE AND LOAD METER TERMINALS.
3. ON OVERHEAD INSTALLATIONS LINE CONDUCTORS MUST ENTER AT TOP OF BOX AND LOAD CONDUCTORS MUST EXIT BOTTOM OF BOX.
4. ON UNDERGROUND INSTALLATIONS LINE CONDUCTORS MUST ENTER LEFT BOTTOM AND LOAD WIRES EXIT BOTTOM RIGHT.
5. DISCONNECT SWITCH MUST BE INSTALLED AHEAD OF METER SOCKET ON 480 VOLT SERVICE.

3 Ø SELF-CONTAINED METER SOCKET

FIGURE 14

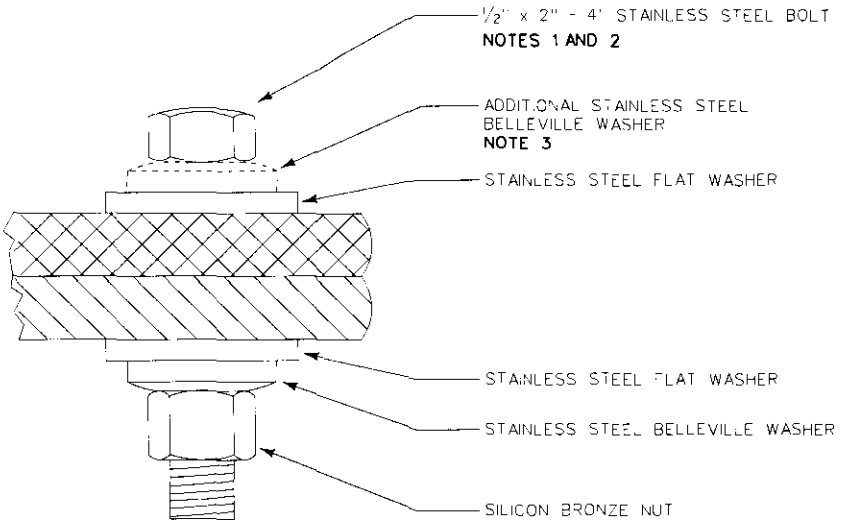


TABLE I

INHIBITOR COMPOUND FOR FLAT SURFACE JOINTS AND BOLT LUBRICATION	
CONNECTION (PLATED & NON PLATED)	INDOOR AND OUTDOOR
CU TO CU	NO-OX-ID GRADE A
CU TO AL	ALCOA 2EJC
AL TO AL	

NOTES:

1. THE BOLT ASSEMBLY SHOWN HERE CAN BE USED TO BOLT ANY COMBINATION OF MATERIALS (ALL COPPER, ALL ALUMINUM OR ANY COMBINATION OF COPPER AND ALUMINUM)
2. ASSEMBLY INSTRUCTIONS:
   (a) NON-PLATED SURFACES - THOROUGHLY CLEAN FLAT CONTACT SURFACES WITH A STAINLESS STEEL WIRE BRUSH TO REMOVE OXIDES, GREASE AND DIRT. COAT CONTACT SURFACES IMMEDIATELY WITH AN APPROVED CORROSION INHIBITING COMPOUND (TABLE I).

   PLATED SURFACES - THOROUGHLY CLEAN FLAT CONTACT SURFACES WITH AN APPROVED SOLVENT (DO NOT WIRE BRUSH UNLESS THE PLATING HAS BECOME CORRODED) TO REMOVE GREASE AND DIRT. COAT CONTACT SURFACES IMMEDIATELY WITH A CORROSION INHIBITING COMPOUND (TABLE I). THIS PROCEDURE CAN ALSO BE USED ON SILVER PLATED COMPONENTS OF MANUFACTURER SUPPLIED EQUIPMENT UNLESS OTHERWISE DIRECTED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

   (b) CONNECTIONS SHOULD BE TIGHTENED TO 360 IN.-LBS. (30 FT.-LBS.).

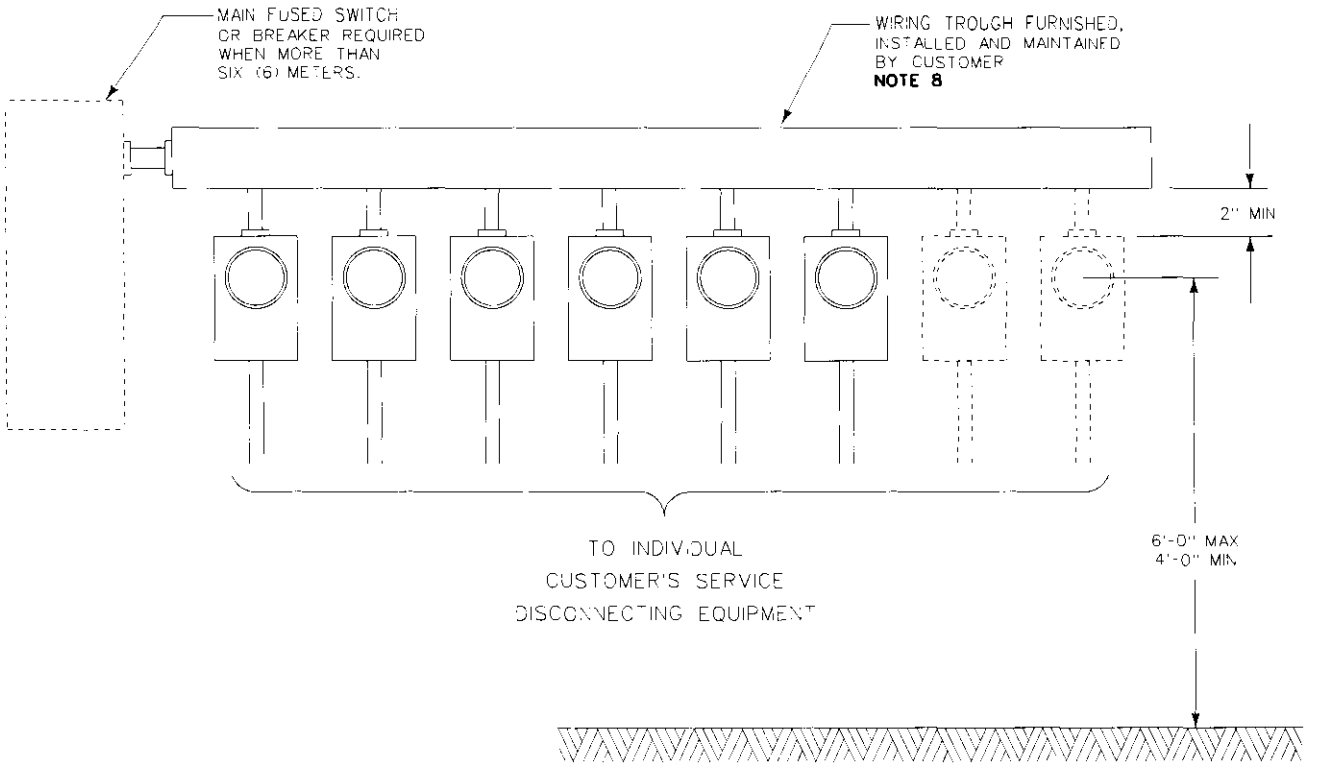
   (c) WIPE OFF THE EXCESS CORROSION INHIBITING COMPOUND, HOWEVER A BEAD OF COMPOUND IS DESIRABLE AROUND THE SURFACE EDGES TO ACT AS A SEALANT.
3. IF MATERIAL TO BE BOLTED EXCEEDS 3 INCHES IN THICKNESS A BELLEVILLE WASHER MUST BE USED UNDER THE BOLT HEAD.
4. WHEN THE ABOVE ASSEMBLY IS NOT AVAILABLE AND THE ASSEMBLY CANNOT BE MADE UP FROM INDIVIDUAL PARTS IN STOCK THE FOLLOWING BOLTS CAN BE USED.
   (a) WHEN BOLTING ALUMINUM TO ALUMINUM AN ALUMINUM BOLT AND NUT CAN BE USED. AN ALUMINUM FLAT WASHER SHOULD BE USED UNDER BOTH THE BOLT HEAD AND NUT. TIGHTEN INHIBITOR LUBRICATED BOLT TO 300 IN.-LBS. (25 FT.-LBS.).

   (b) WHEN BOLTING COPPER TO COPPER A SILICON BRONZE BOLT AND NUT CAN BE USED. A SILICON BRONZE FLAT WASHER SHOULD BE USED UNDER BOTH THE BOLT HEAD AND THE NUT. CONNECTIONS SHOULD BE TIGHTENED TO 360 IN.-LBS. (30 FT.-LBS.).

   (c) WHEN BOLTING COPPER TO ALUMINUM A GALVANIZED STEEL BOLT, NUT, FLAT WASHERS AND STAINLESS STEEL BELLEVILLE WASHER CAN BE USED. CONNECTIONS SHOULD BE TIGHTENED TO 360 IN.-LBS. (30 FT.-LBS.).

BOLTED CONNECTOR ASSEMBLIES

FIGURE 15

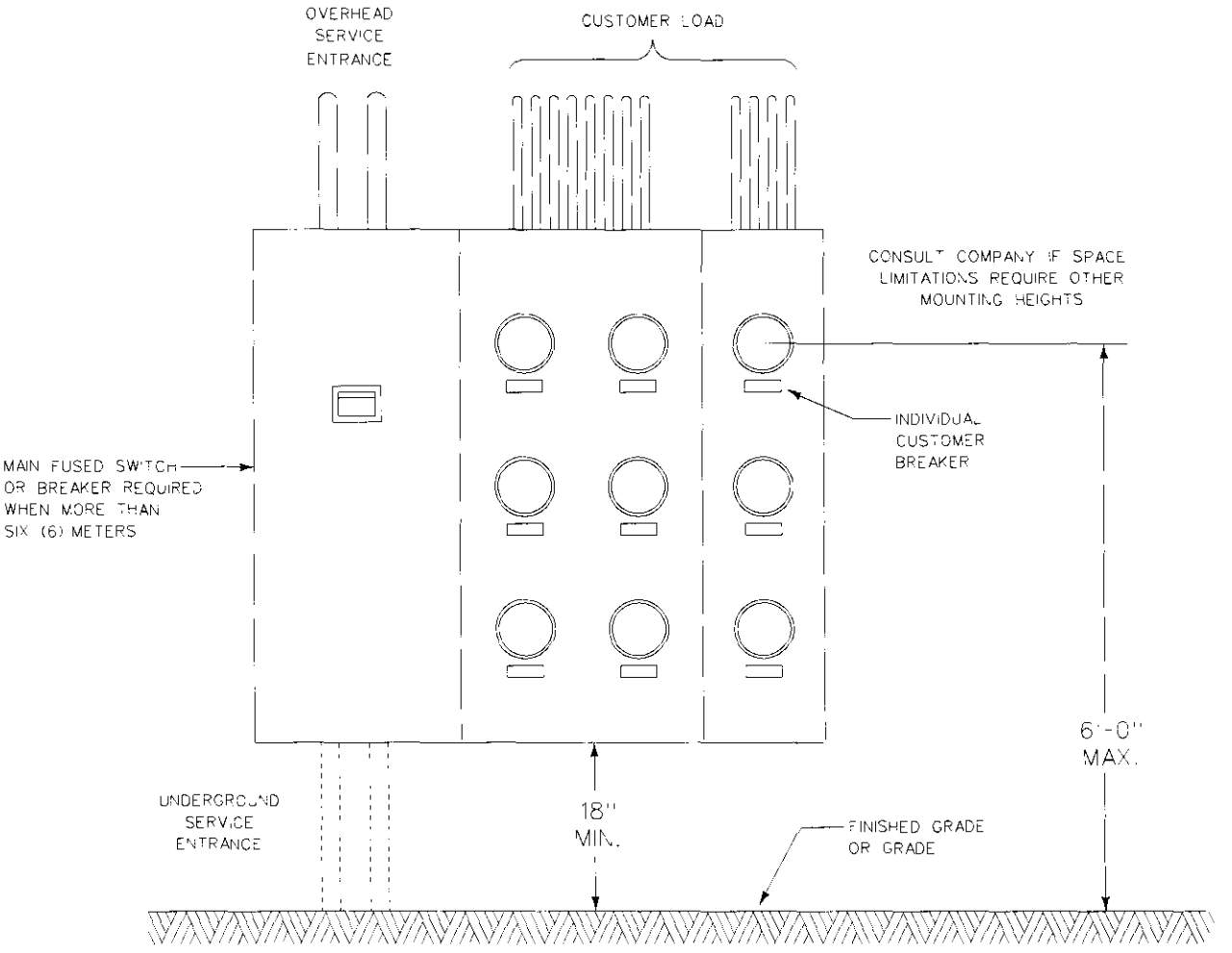


NOTES:

1. CUSTOMER MUST CONSULT WITH COMPANY FOR POINT OF ATTACHMENT OF SERVICE LATERAL OR DROP, METERING LOCATION, AND PROPOSED SERVICE ENTRANCE FACILITIES PRIOR TO PROCEEDING WITH THIS INSTALLATION.
2. ALL CUSTOMER WORK MUST BE COMPLETED AND INSPECTIONS OBTAINED BEFORE COMPANY WILL PROVIDE SERVICE.
3. CUSTOMER SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING AND CONNECTING ALL SERVICE ENTRANCE WIRING FROM TERMINAL BOX WHERE REQUIRED OR MAIN DISCONNECT TO METER SOCKETS AND ALSO BE RESPONSIBLE FOR ENSURING THAT TERMINAL BOX OR MAIN DISCONNECT HAS PROPER NUMBER, SIZE AND TYPE OF TERMINALS TO ACCEPT COMPANY SERVICE LATERAL.
4. CUSTOMER WILL INSTALL ALL METER SOCKETS AND CONNECT ALL CONDUCTORS IN METER SOCKET.
5. COMPANY WILL FURNISH AND INSTALL METERS.
6. METERED CONDUCTORS SHALL NOT BE INSTALLED IN WIRING TROUGH(S)
7. CUSTOMER MAY INSTALL METER STACK OR METER TROUGH TYPE EQUIPMENT SUBJECT TO COMPANY APPROVAL.
8. WIRING TROUGH(S), MAIN SERVICE DISCONNECT OR TERMINAL BOX SHALL BE SEALABLE, LOCKABLE AND SHALL ALSO BE WEATHERPROOF WHEN INSTALLED OUTDOORS.
9. LINE SIDE, NON-FUSED DISCONNECT REQUIRED FOR EACH SOCKET ON 480 VOLT INSTALLATIONS, SEE FIGURE 12.
10. CUSTOMER SHALL PERMANENTLY AND CLEARLY LABEL EACH METER SOCKET TO SHOW AREA SERVED BEFORE METERS WILL BE INSTALLED.
11. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

MULTIPLE METER INSTALLATION

FIGURE 16

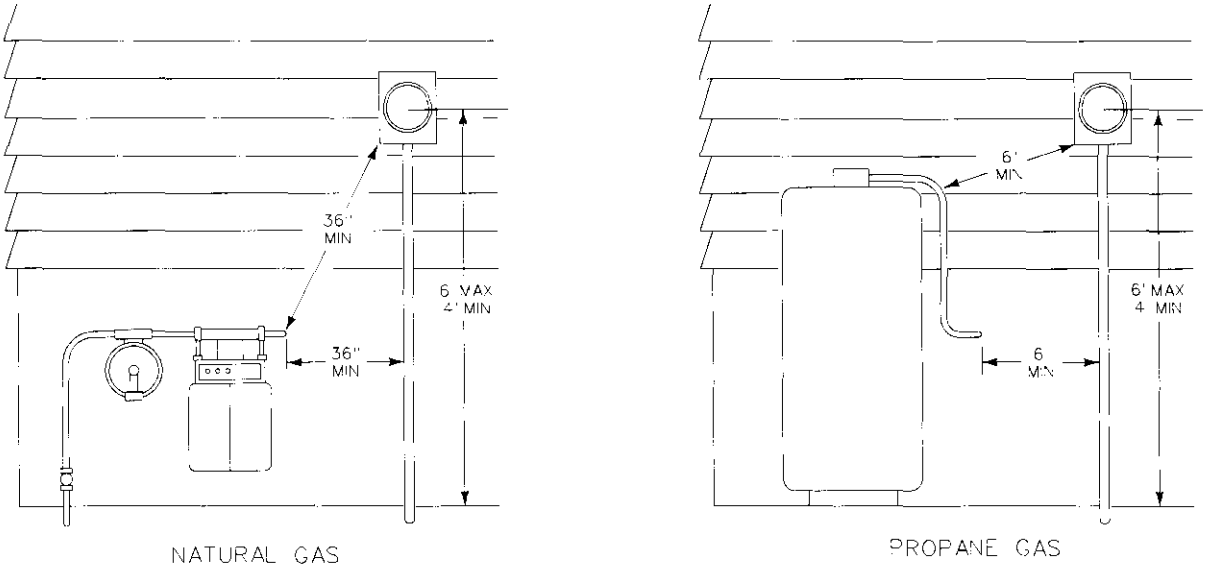


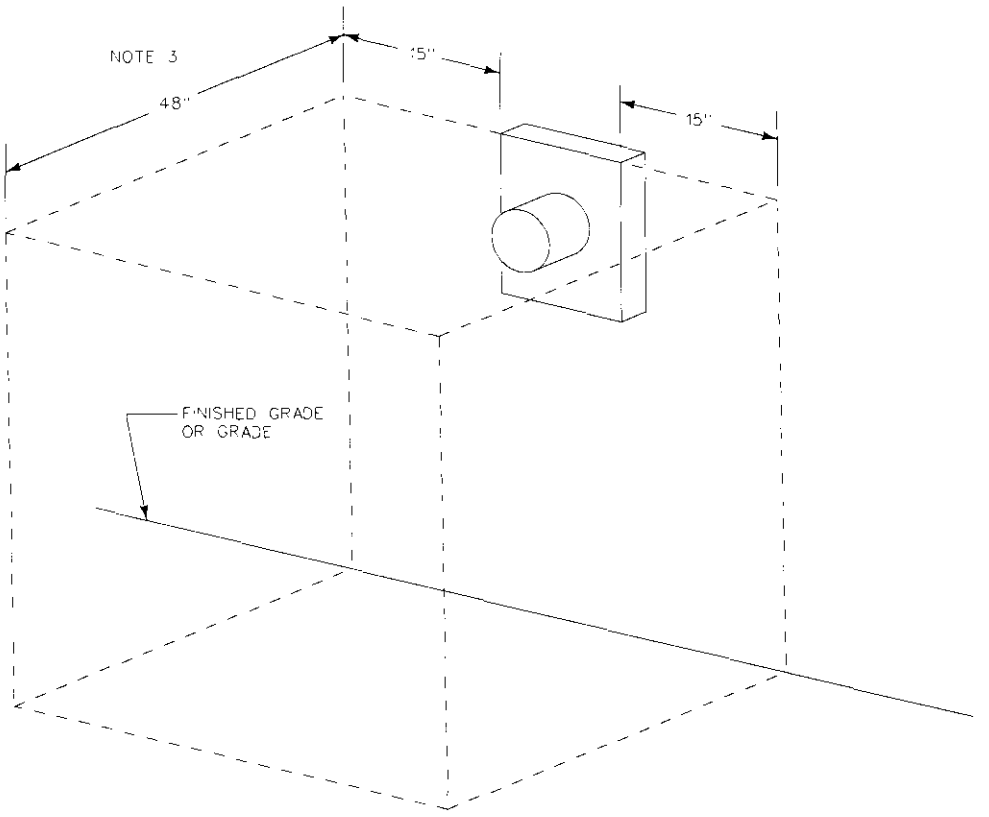
NOTES:

1. CUSTOMER MUST CONSULT WITH COMPANY FOR POINT OF ATTACHMENT OF SERVICE LATERAL OR DROP, METERING LOCATION, AND PROPOSED SERVICE ENTRANCE FACILITIES PRIOR TO PROCEEDING WITH THIS INSTALLATION.
2. ALL CUSTOMER WORK MUST BE COMPLETED AND INSPECTIONS OBTAINED BEFORE COMPANY WILL PROVIDE SERVICE.
3. CUSTOMER SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING AND CONNECTING ALL SERVICE ENTRANCE WIRING FROM TERMINAL BOX OR MAIN DISCONNECT TO METER SOCKETS AND ALSO BE RESPONSIBLE FOR INSURING THAT TERMINAL BOX OR MAIN DISCONNECT HAS PROPER NUMBER, SIZE AND TYPE OF TERMINALS TO ACCEPT COMPANY SERVICE LATERAL.
4. CUSTOMER SHALL PERMANENTLY AND CLEARLY LABEL EACH METER SOCKET TO SHOW AREAS SERVED BEFORE METERS WILL BE INSTALLED.
5. CUSTOMER GROUNDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
6. LINE SIDE, NONFUSED DISCONNECT REQUIRED FOR EACH SOCKET ON 480 VOLT INSTALLATIONS, SEE FIGURE 12.
7. ALL 320 AMP METER SOCKETS AND 200 AMP METER SOCKETS WITH FIVE OR SEVEN TERMINALS SHALL HAVE A JAW RELEASING, MANUALLY OPERATED, 100% RATED BYPASS.
8. METER SOCKETS WILL BE RINGLESS AND HAVE A SAFETY SHIELD.

PRE-ASSEMBLED MULTIPLE METER INSTALLATION

FIGURE 17



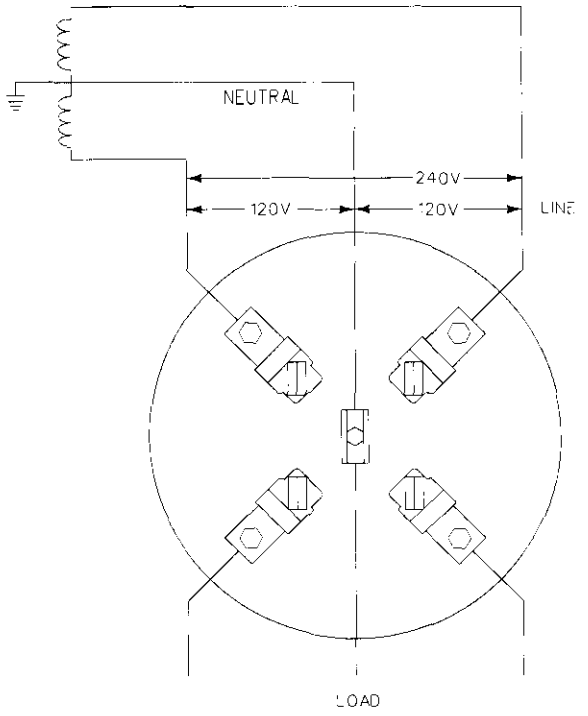


NOTES:

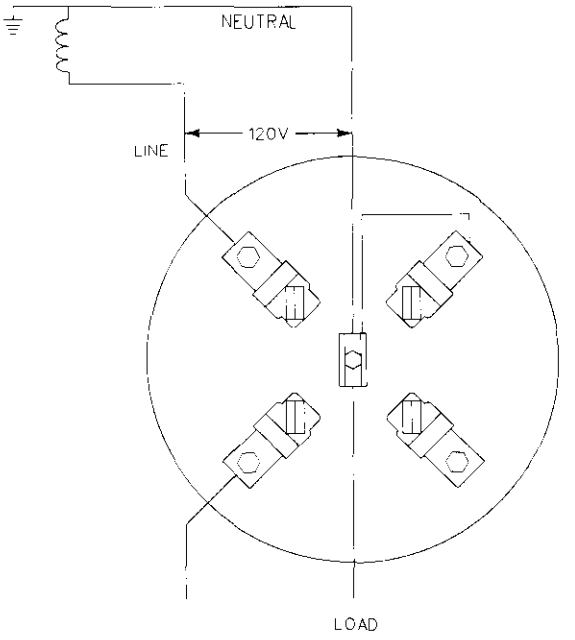
1. DIMENSIONS SHOWN ARE MINIMUMS. LOCAL INSPECTING AUTHORITY MAY REQUIRE GREATER SEPARATION.
2. SUFFICIENT ACCESS AND WORKING SPACE SHALL BE PROVIDED AND MAINTAINED ABOUT ALL METERING EQUIPMENT TO PERMIT READY AND SAFE OPERATION AND MAINTENANCE OF SUCH EQUIPMENT. THE DIMENSION OF THE WORKING SPACE IN THE DIRECTION OF ACCESS TO LIVE PARTS OPERATING AT 600 VOLTS OR LESS AND LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE WHILE LIVE SHALL NOT BE LESS THAN 4 FEET, AND THE WORK SPACE SHALL NOT BE LESS THAN FIFTEEN (15") INCHES TO EITHER SIDE OF THE ELECTRIC EQUIPMENT. IN NO CASE SHALL HEADROOM BE LESS THAN 7 FEET. PLANTS, SCRUBS, AND TREES MUST NOT BE PLANTED IN THIS SPACE.
3. SEE NEC FOR VOLTAGES GREATER THAN 120V TO GROUND.

METER CLEARANCES

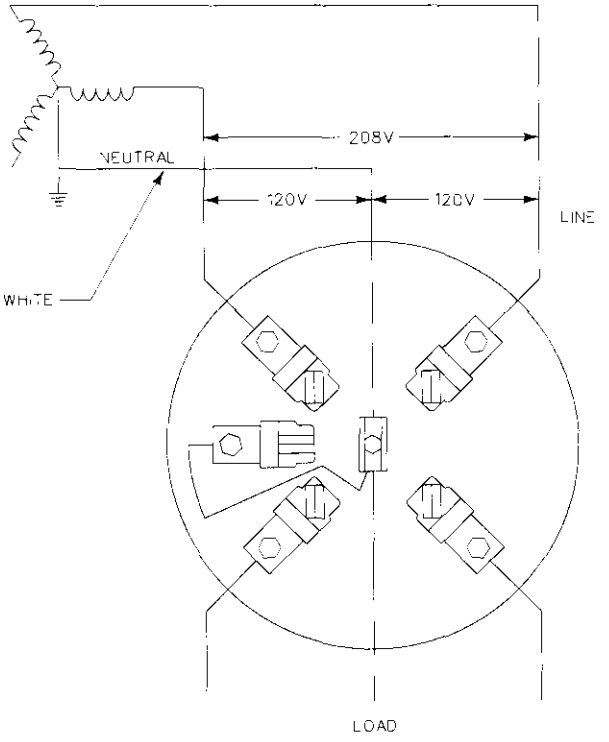
FIGURE 18



3 WIRE 120/240 VOLT
SINGLE PHASE SELF CONTAINED

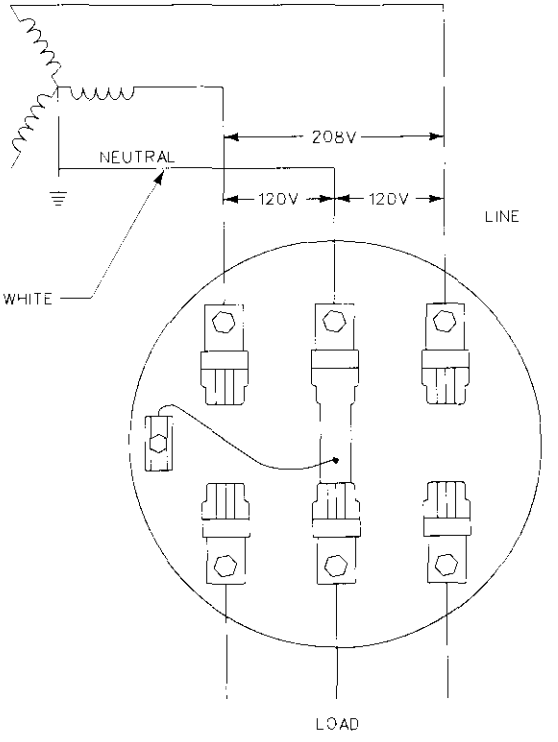


2 WIRE 120 VOLT
SINGLE PHASE SELF CONTAINED



3 WIRE NETWORK 120/208 VOLT
SINGLE PHASE SELF CONTAINED

INDIANA, KENTUCKY, MICHIGAN, OHIO,
TENNESSEE, VIRGINIA, WEST VIRGINIA

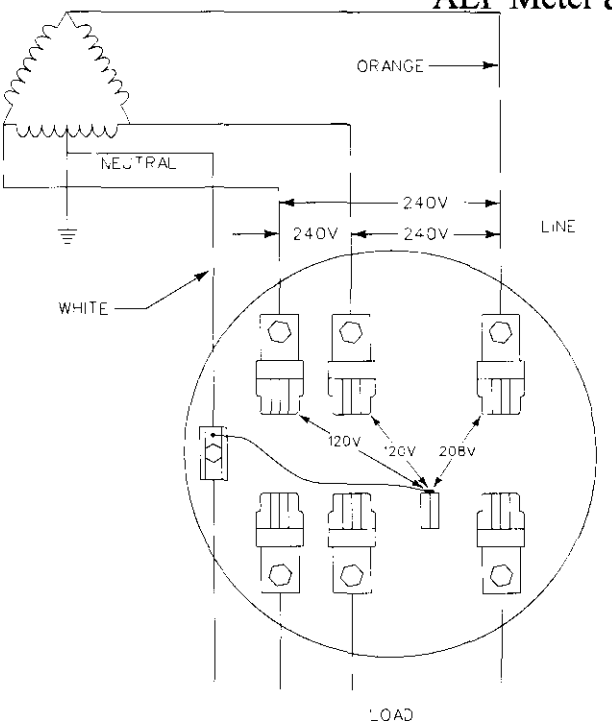


3 WIRE NETWORK 120/208 VOLT
SINGLE PHASE SELF CONTAINED

ARKANSAS, OKLAHOMA, LOUISIANA, TEXAS

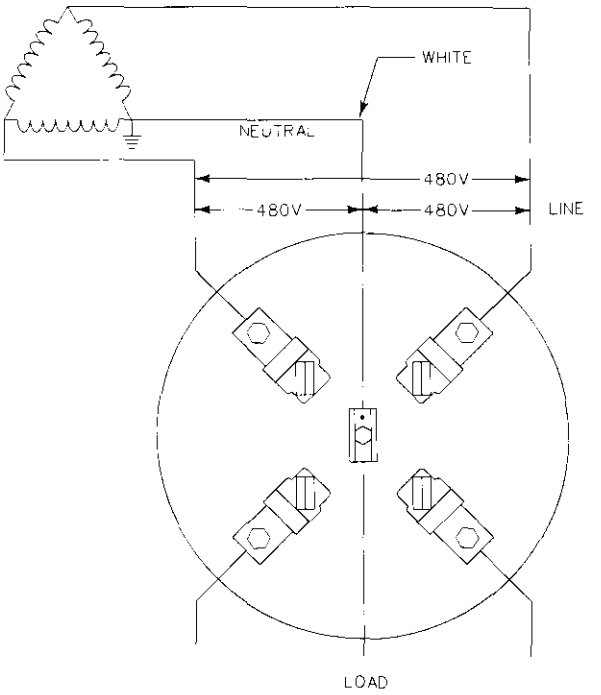
SELF CONTAINED METER SOCKET CONNECTIONS

FIGURE 19

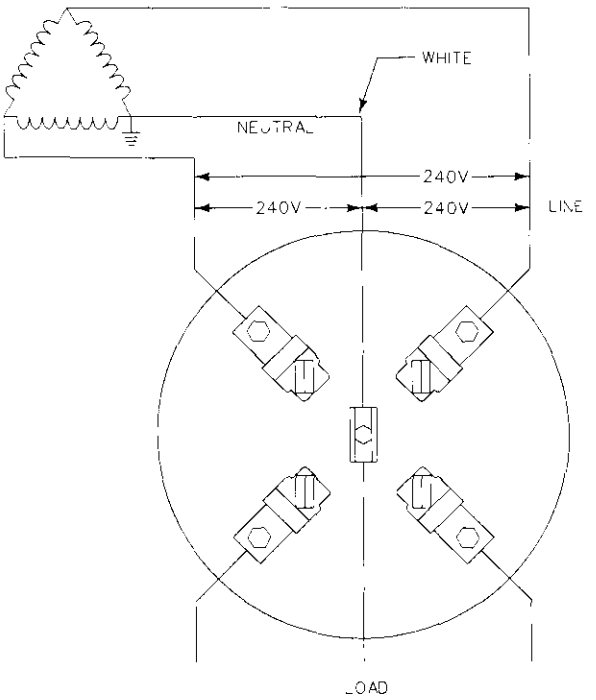


4 WIRE DELTA 120/240 VOLT
THREE PHASE SELF CONTAINED

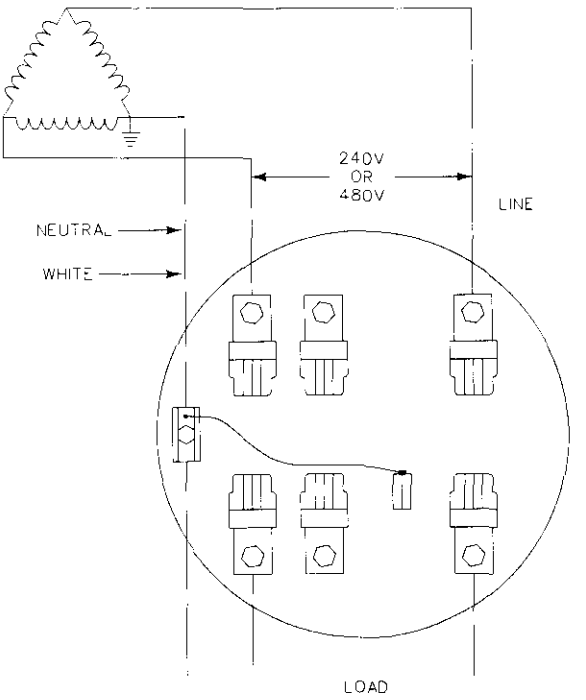
ON A 4-WIRE DELTA CONNECTION, THE PHASE HAVING THE HIGHEST VOLTAGE TO GROUND (HIGH LEG OR WILD LEG) MUST BE CONNECTED TO THE RIGHT HAND TERMINALS OF THE METER SOCKET. IN OTHER LOCATION, SUCH AS SERVICE ENCLOSURES, DISCONNECTS, ETC., THE "HIGH LEG" IS CONNECTED TO THE CENTER TERMINAL.



3 WIRE 480 VOLT
THREE PHASE SELF CONTAINED
CENTER PHASE DISCONNECT
ARKANSAS, OKLAHOMA, LOUISIANA, TEXAS



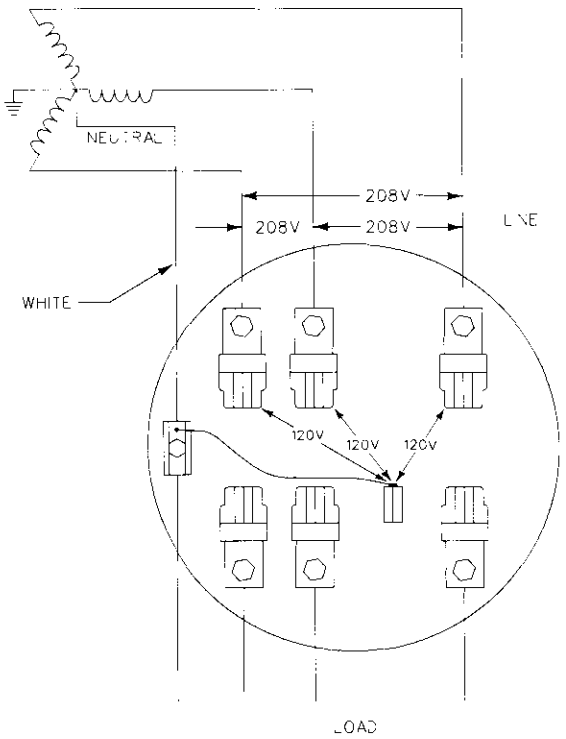
3 WIRE 240 VOLT
THREE PHASE SELF CONTAINED
CENTER PHASE DISCONNECT
ARKANSAS, OKLAHOMA, LOUISIANA, TEXAS



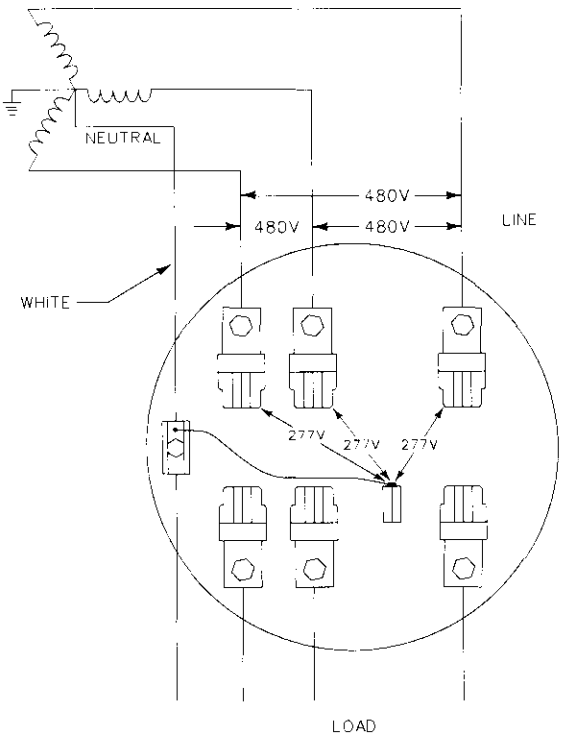
3 WIRE 240 OR 480 VOLT
THREE PHASE SELF CONTAINED
7 TERMINAL SOCKET
INDIANA, KENTUCKY, MICHIGAN, OHIO, TENNESSEE, VIRGINIA, WEST VIRGINIA

SELF CONTAINED METER SOCKET CONNECTIONS

FIGURE 20



4 WIRE WYE 120/208 VOLT
THREE PHASE SELF CONTAINED



4 WIRE WYE 277/480 VOLT
THREE PHASE SELF CONTAINED

SELF CONTAINED METER SOCKET CONNECTIONS

FIGURE 21