

				WIRING DATA				
AMPACITY OF INSULATED CONDUCTORS Not more than three conductors in a raceway or cable or earth (directly buried) (Based on Table 310-16 - 1993 NEC)				NUMBER OF WIRES IN CONDUIT TYPES THW THWN THHN THHW (14-500) One to four conductors (Based on Table 1 Chapter 9 - 1990 NEC)				
SIZE	COPPER		ALUM.	SIZE AWG kcmil	NUMBER OF WIRES			
	75°C	90°C	75°C		1	2	3	4
AWG OR kcmil	TYPES	TYPES	TYPES					
	FEPW	FEPB	RH	14	½	½	½	½
	RH, RHW	RHH	RHW	12	½	½	½	½
	THW	THHN	THW	10	½	½	½	½
	THWN	THHW	THWN	8	½	¾	¾	1
	USE	XHHW	USE					
14	15	15		6	½	¾	1	1
12	20	20	15	4	½	1	1	1¼
10	30	30	25	3	½	1	1¼	1¼
8	50	55	40					
6	65	75	50	2	½	1	1¼	1¼
4	85	95	65	1	¾	1¼	1¼	1½
3	100	110	75	1/0	¾	1¼	1½	2
2	115	130	90	2/0	¾	1½	1½	2
1	130	150	100					
1/0	150	170	120	3/0	¾	1½	2	2
2/0	175	195	135	4/0	1	2	2	2½
3/0	200	225	155	250	1	2	2½	2½
4/0	230	260	180	300	1	2	2½	3
250	255	290	205					
300	285	320	230	120/240 Volt 3 wire single phase Residential Service Entrance Sizes				
350	310	350	250	SERVICE SIZE	MINIMUM WIRE SIZE			
400	335	380	270		COPPER		ALUMINUM	
500	380	430	310	100 Amps	4 AWG		2 AWG	
600	420	475	340	125 Amps	2 AWG		1/0 AWG	
700	460	520	375	150 Amps	1 AWG		2/0 AWG	
750	475	535	385	175 Amps	1/0 AWG		3/0 AWG	
1000	545	615	445	200 Amps	2/0 AWG		4/0 AWG	
MISCELLANEOUS DATA 1 KWH = 3414 BTU 1 HP = 746 WATTS 1 Ton Air Conditioning = 12,000 BTU E = IR I = E/R R = E/I P = EI P = I²R P = E²/R				225 Amps	3/0 AWG		250 kcmil	
				250 Amps	4/0 AWG		300 kcmil	
				300 Amps	250 kcmil		350 kcmil	
				350 Amps	350 kcmil		500 kcmil	
				400 Amps	400 kcmil		600 kcmil	

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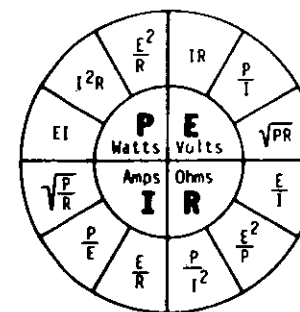
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SINGLE-PHASE CIRCUITS					FULL-LOAD CURRENTS IN AMPERES			
KVA	120	208	240	277	480	2400	4160	7200
3	25.0	14.4	12.5	10.8	6.3	1.25	.72	.42
5	41.7	24.0	20.8	18.1	10.4	2.08	1.20	.69
10	83.3	48.1	41.7	36.1	20.8	4.17	2.40	1.39
15	125	72.1	62.5	54.2	31.3	6.25	3.61	2.08
25	208	120	104	90.3	52.1	10.4	6.01	3.47
37½	313	180	156	135	78.1	15.6	9.01	5.21
50	417	240	208	181	104	20.8	12.0	6.94
75	625	361	313	271	156	31.3	18.0	10.4
100	833	481	417	361	208	41.7	24.0	13.9
167	1392	803	696	603	348	69.6	40.1	23.2
250	2083	1202	1042	903	521	104	60.1	34.7
333	2775	1601	1388	1202	694	139	80.0	46.3
500	4167	2404	2083	1805	1042	208	120	69.4

THREE-PHASE CIRCUITS								
KVA	208	240	480	2400	4160	7200	12470	24940
9	25.0	21.7	10.8	2.17	1.25	.72	.42	.36
15	41.6	36.1	18.0	3.61	2.08	1.20	.69	.60
30	83.3	72.2	36.1	7.22	4.17	2.41	1.39	1.20
45	125	108	54.1	10.8	6.25	3.61	2.08	1.80
75	208	180	90.2	18.0	10.4	6.01	3.48	3.01
112½	312	271	135	27.1	15.6	9.02	5.21	4.51
150	416	361	180	36.1	20.8	12.0	6.96	6.01
225	625	541	271	54.1	31.3	18.0	10.4	9.02
300	833	722	361	72.2	41.7	24.1	13.9	12.0
500	1388	1203	601	120	69.4	40.1	23.2	20.0
750	2082	1804	902	180	104	60.1	34.7	30.0
1000	2776	2406	1203	241	139	80.2	46.3	40.1
1500	4164	3608	1804	361	208	120.3	69.4	60.1
2000	5552	4811	2406	481	278	160.4	92.6	80.2

OHMS LAW



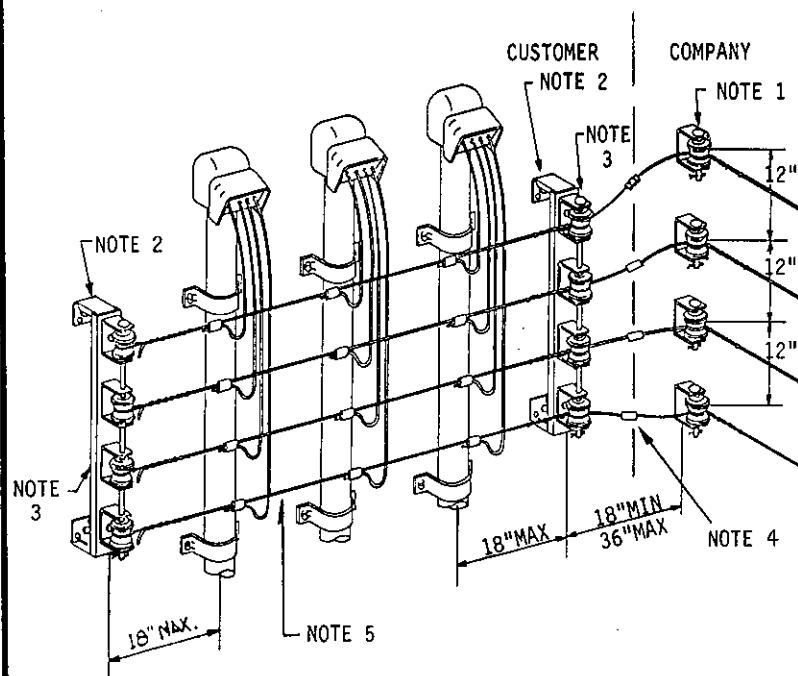
Formulas above for single phase,
100% power factor loads.

For 3-phase loads

$P = E \times I \times 1.73 \times \text{power factor}$

FIGURE 28

OPTIONAL METHOD OF CONNECTING MULTIPLE SERVICES



NOTES:

1. COMPANY TERMINATES SERVICE DROP ON ONE POINT RACKS AT A SINGLE POINT AGREED ON BY THE CUSTOMER AND COMPANY.
2. CUSTOMERS MOUNTING BRACKET AND INSULATORS MUST EXTEND PAST THE SURFACE OF THE SERVICE ENTRANCE CONDUITS.
3. CUSTOMER MAY SUBSTITUTE ONE POINT RACKS FOR MULTIPLE SPOOL BRACKETS.
4. SEE SECTION 3.8.2 FOR CONNECTION OF CUSTOMERS SERVICE ENTRANCE CONDUCTORS.
5. BUS CONDUCTORS MUST HAVE AN AMPACITY EQUAL TO OR GREATER THAN THE COMPANY'S SERVICE CONDUCTORS.

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120/208V Wye	
Transformer Socket	59
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Indoor Cabinet	
3 Phase, 4 Wire, 120/240V Delta or	
120/208V Wye	60

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*Before You Dig Anywhere
in Pennsylvania . . .*

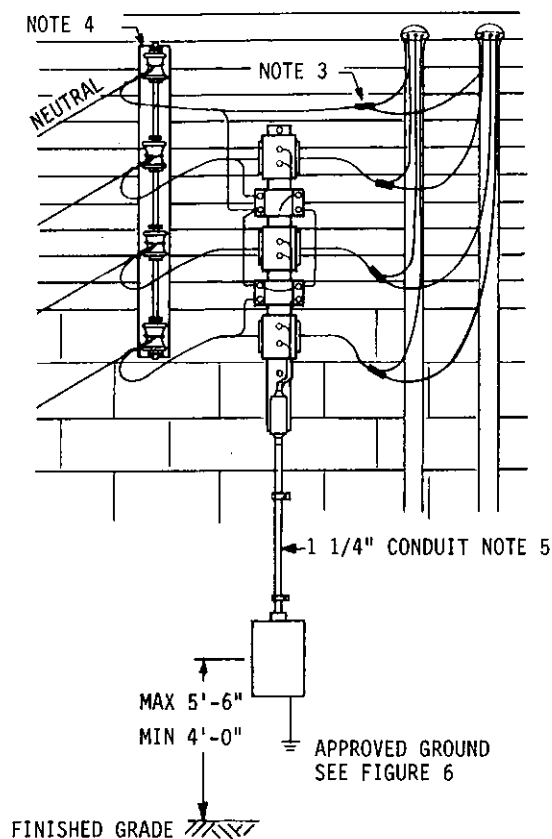
STOP! CALL 1-800-242-1776
Toll Free

PA Act 38 requires three working
days notice before you excavate.

PA ONE CALL SYSTEM, INC.

FIGURE 27

TYPICAL TRANSFORMER OPERATED METERING UNDER 600 VOLTS - OUTDOOR - OVERHEAD

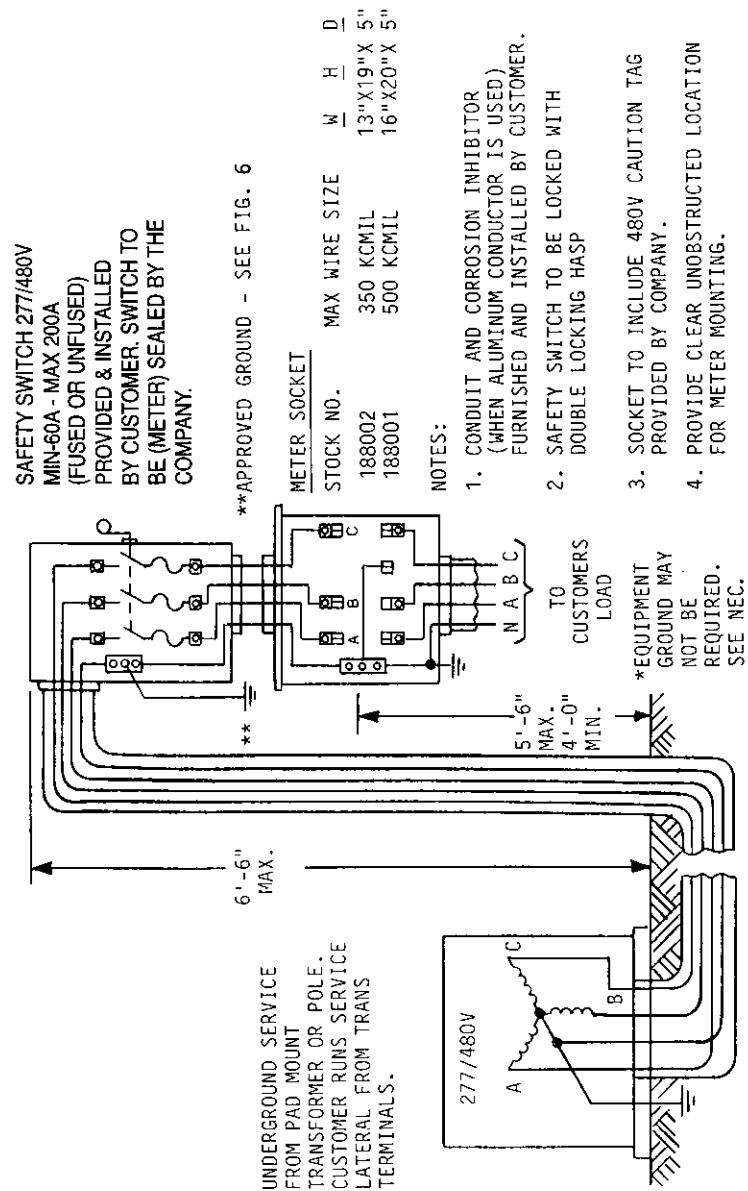


NOTES:

1. THE METERING TRANSFORMER PACKAGE AND METER SOCKET ARE SUPPLIED BY THE COMPANY AND INSTALLED BY THE CUSTOMER. THE NUMBER OF POTENTIAL AND CURRENT TRANSFORMERS WILL VARY WITH SERVICE VOLTAGE.
2. SEE FIGURE 2 FOR CLEARANCES.
3. SEE SECTION 3.8.2 FOR CONNECTION OF CUSTOMERS SERVICE ENTRANCE CONDUCTORS.
4. SEE SECTION 5.2.1 FOR SUPPORT OF COMPANYS SERVICE DROP CONDUCTORS.
5. IMC OR RIGID METAL CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. METER CABLE FURNISHED AND INSTALLED BY COMPANY.

FIGURE 26

OPTIONAL METER INSTALLATION
200 AMP OR LESS
SELF CONTAINED METERING
3 PHASE, 4 WIRE, 277/480V WYE
UNDERGROUND SERVICE



TARENTUM ELECTRIC DEPT.

OFFICE:

Borough of Tarentum
318 Second Avenue
Tarentum, Pennsylvania 15084

Borough Office Phone: (724) 224-1818
Fax: (724) 224-1821

Utility Co. Phone: (724) 224-1616

SERVICE:

Utility Building Location
100 Davidson Street
Tarentum, Pennsylvania 15084

Service Phone: (724) 226-1132

EMERGENCY & 24 HOUR PHONE NO.
(724) 224-1616

FIGURE 25

OPTIONAL METER INSTALLATION 200 AMP OR LESS SELF CONTAINED METERING 3 PHASE, 4 WIRE, 277/480V WYE OVERHEAD SERVICE

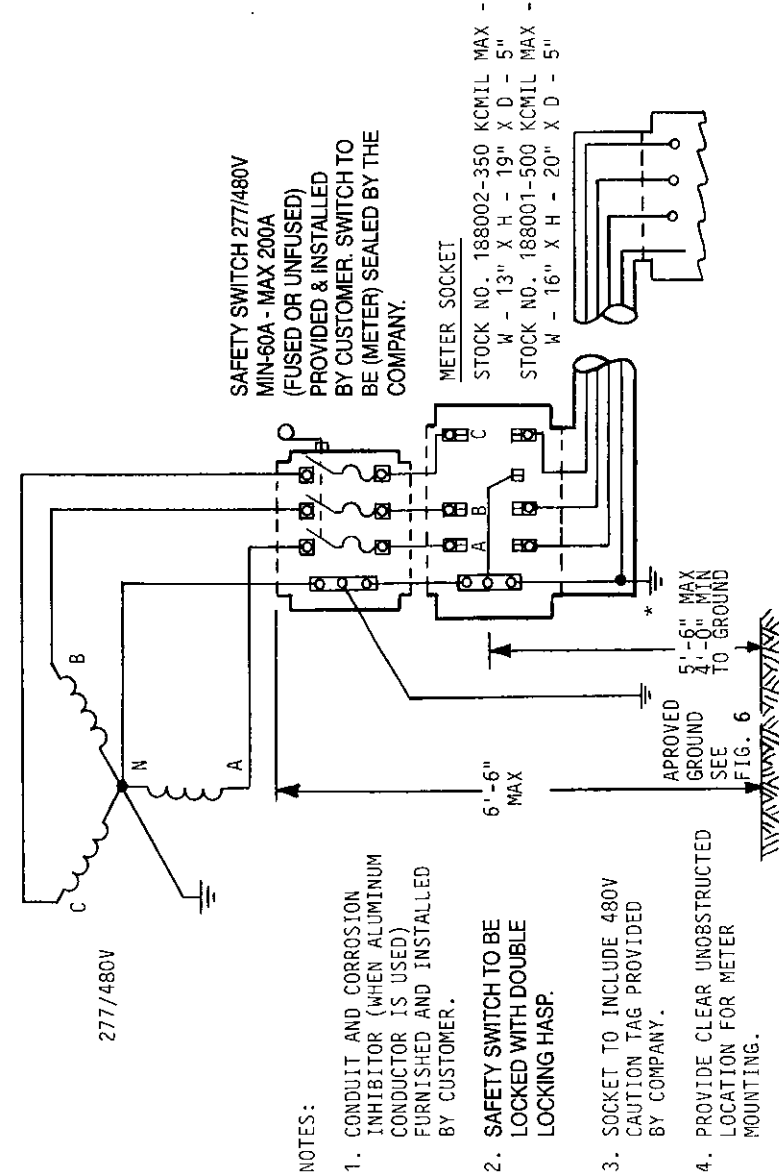
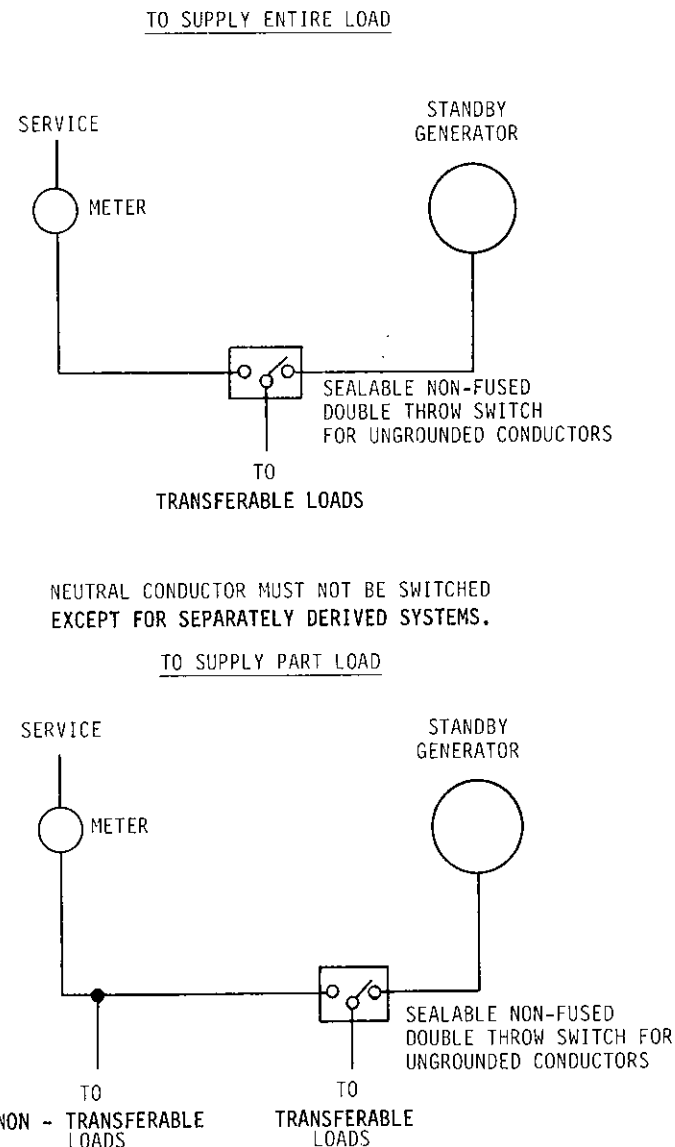


FIGURE 24

STANDBY SERVICE



1. INTRODUCTION

- 1.1 These rules for service wiring and equipment installations made on premises of Customers served by the Company are issued for the guidance of customers, contractors, architects and engineers. They require that electrical installations be designed and installed so as to protect the interests of Customer, Company and the public. They are based on codes and Company standards proved by experience and aim to provide safe and satisfactory service.
- 1.2 These rules are not all-inclusive but merely cover matters which concern both Customer and Company, and which facilitate the supplying of electricity. Since they are not all-inclusive specifications, compliance with them is no assurance that a wiring installation is adequate for full and most convenient use of electric service.
- 1.3 The full comfort and convenience of electric service can be enjoyed only with an adequate wiring installation. A wiring installation which will serve future as well as immediate requirements is usually a sound investment. Therefore, plans should provide for ample reserve ampere capacity in the entrance conductors and spare circuit positions in the service entrance equipment.
- 1.4 Issuance of these rules does not release Customer from the normal obligation of maintaining his/her electric wiring and equipment in a safe condition, nor does Company in any way accept responsibility for Customer's wiring and equipment.
- 1.5 The information contained herein will be revised and amended from time to time to keep pace with development and progress in the electrical industry. Additional copies and any revisions may be secured at any Company office. Questions as to their application or interpretation should be referred to Company, and it will give all reasonable assistance.

2. DEFINITIONS

Certain words used in these rules shall be understood to have the following meaning:

- 2.1 Approved**—indicates approval by the Company.
- 2.2 Capacity**—nominal current-carrying capacity of conductors shall be based on National Electrical Code.
- 2.3 Company**— Borough of Tarentum Electric Department
- 2.4 Customer**—any present or prospective user of Company's services or his representative.
- 2.5 Hertz**—cycles per second.
- 2.6 Locked Rotor Current**—the amperes drawn by a motor at rated voltage with its rotor locked.
- 2.7 Service**—any electric energy which Company supplies.
- 2.8 Service Equipment**—the conductors and equipment for delivering energy from the electricity supply system to the wiring system of the premises served.
- 2.9 Service Drop**—the overhead wires, through which service is supplied, between Company's pole and the point of connection to Customer's service entrance conductors.
- 2.10 Service Lateral**—the underground service conductors between the street main, including any risers at a pole or structure or from transformers, and the first point of connection to the service entrance conductors in a terminal box or meter socket.
- 2.11 Service Entrance**—the wires and equipment through which service is supplied, beyond the point where Customer's wiring is connected to Company's service drop, service lateral or other facilities, and includes the main switches and fuses or circuit breakers and their accessories.
- 2.12 Wire Size**—all wires are based on American Wire Gauge Standards and National Electrical Code ampacities.

FIGURE 23

TYPICAL METER INSTALLATION
WITH INSTRUMENT TRANSFORMERS
INDOOR CABINET
3 PHASE, 4 WIRE, 277/480V WYE
ALL WIRE SIZES

CONSULT COMPANY FOR APPLICATION

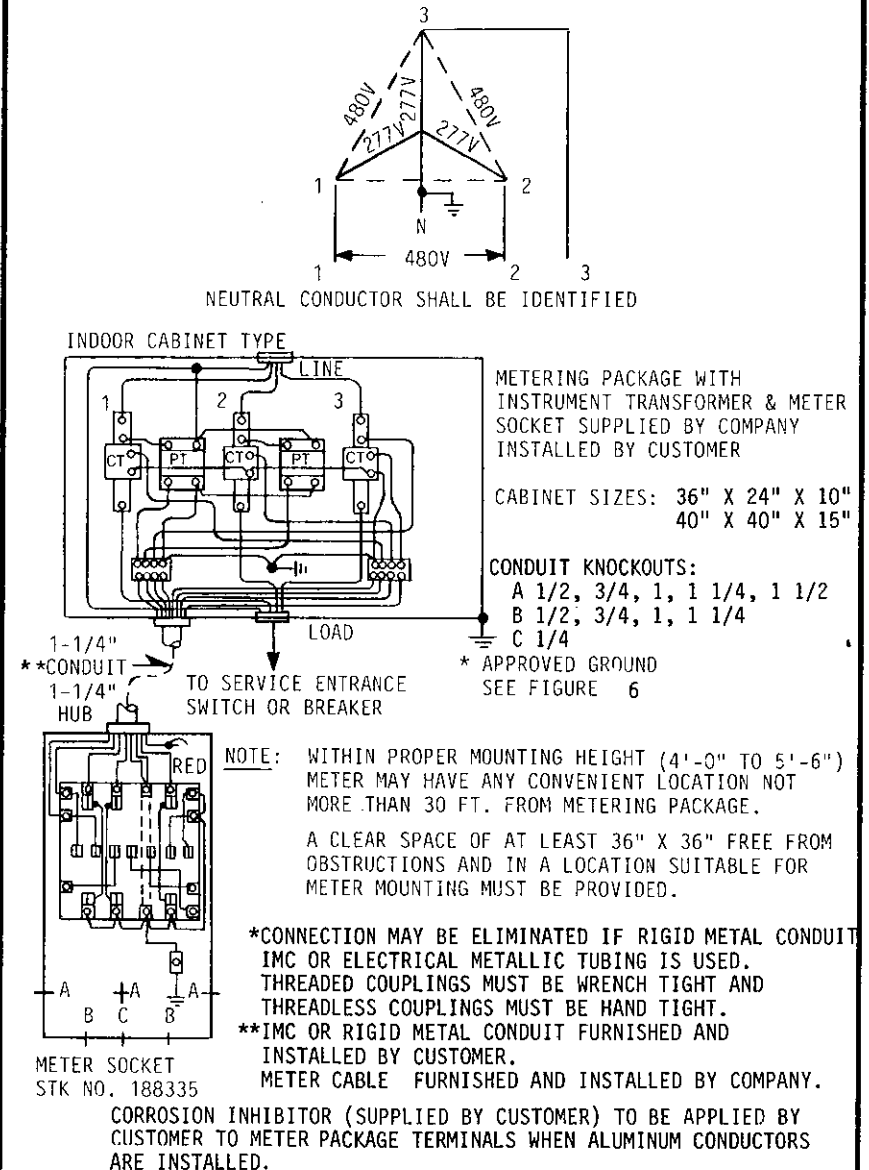
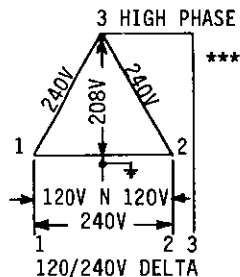


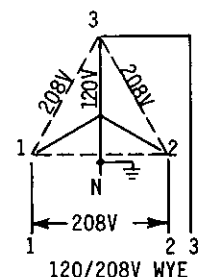
FIGURE 22

TYPICAL METER INSTALLATION WITH INSTRUMENT TRANSFORMERS INDOOR CABINET 3 PHASE, 4 WIRE, 120/240V DELTA OR 120/208V WYE

CONSULT COMPANY FOR APPLICATION

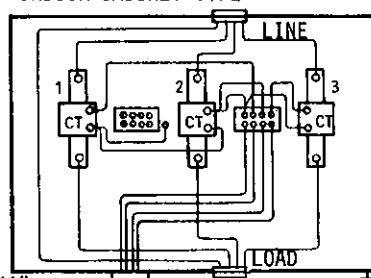


ALL CONDUCTORS SHALL
BE IDENTIFIED



NEUTRAL CONDUCTOR SHALL
BE IDENTIFIED

INDOOR CABINET TYPE



METERING PACKAGE WITH INSTRUMENT
TRANSFORMERS & METER SOCKET
SUPPLIED BY COMPANY, INSTALLED BY
CUSTOMER.

CABINET SIZES: 36" X 24" X 10"
40" X 40" X 15"

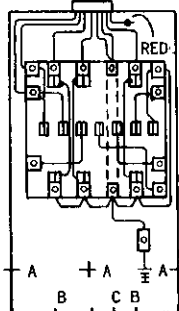
CONDUIT KNOCKOUTS:

A 1 1/2, 3/4, 1, 1 1/4, 1 1/2
B 1/2, 3/4, 1, 1 1/4
C 1/4

APPROVED GROUND SEE FIG 6.

1 1/4" CONDUIT** TO SERVICE ENTRANCE SWITCH OR BREAKER

1 1/4" HUB



METER SOCKET
STK NO. 188335

WITHIN PROPER MOUNTING HEIGHT 4'-0" TO 5'-6" METER
MAY HAVE ANY CONVENIENT LOCATION, NOT MORE THAN 30 FT
FROM METERING PACKAGE.

A CLEAR SPACE OF AT LEAST 36" X 36" FREE FROM
OBSTRUCTIONS AND IN A LOCATION SUITABLE FOR METER
MOUNTING SHALL BE PROVIDED.

*CONNECTION MAY BE ELIMINATED IF RIGID METAL
CONDUIT, IMC OR ELECTRICAL METALLIC TUBING IS USED
THREADED COUPLINGS MUST BE WRENCH TIGHT AND
THREADLESS COUPLINGS MUST BE HAND TIGHT.

**IMC OR RIGID METAL CONDUIT FURNISHED AND INSTALLED
BY CUSTOMER.

CORROSION INHIBITOR (SUPPLIED BY CUSTOMER) TO BE
APPLIED BY CUSTOMER TO METER PACKAGE TERMINALS
WHEN ALUMINUM CONDUCTORS ARE INSTALLED.

***WIRE OF HIGH PHASE TO BE COLOR CODED ORANGE OR
TAGGED, OR IDENTIFIED BY SOME OTHER EFFECTIVE
MEANS.

3. GENERAL

3.1 Application for Service

The Customer desiring service is required to apply at the Company's office as far in advance as possible of the date service is desired. Applications for service must be made to and accepted by the Company before service will be supplied. (Applications for an electrical inspection is not considered to be an application for service.)

The Customer must consult the Company for information concerning the point of attachment of the service facilities to the Customer's building, the location of the meter, characteristics of the service and other pertinent matters.

The standard overhead and underground electrical distribution by the Company is by means of front lot construction.

3.2 Alterations and Additions

Each service drop, transformer, meter, and other equipment supplied by Company has a limited capacity. Customer load additions such as electric heat, air conditioners, motors, electric water heater, electric welding equipment, communications transmitters, and other large loads may overload Company facilities. Therefore, the Company **must** be advised so that facilities of proper capacity may be provided to assure satisfactory operation of Customer's equipment and to protect both Customer's and Company's equipment against damage. Electricity must not be introduced into any additional wiring or equipment until such new work is inspected and approved as provided for herein, and it is determined that Company's facilities are adequate.

3.3 Line Extensions

Company will be pleased to discuss the terms and conditions of extending its facilities to supply service to Customers located beyond reach of existing distribution system.

FIGURE 21

3.4 Requirements for Safe Installation

It is necessary for the protection of Customers that all wiring and equipment on their premises be installed and maintained in a safe manner. Compliance with the requirements of the National Electrical Code will be considered as evidence of a safe installation.

3.5 Requirements for Electrical Inspection

Company will supply service to new Customer's installations or supply service to the extension of present Customer's installations only when all requirements contained herein have been met, and Company has been given assurance of safe installation by a certificate of electrical approval issued by a recognized inspection agency. It is the Customer's responsibility to obtain such approval.

For new construction, the entire building wiring system must conform to the rules set forth in this book and to the National Electrical Code and be approved by a recognized inspection agency. A temporary or in-progress inspection may be acceptable to supply construction power provided that a final approval of the entire building wiring system is received within six months. Failure to receive final approval may result in disconnection of service.

For upgrading of existing connections, any new service entrance equipment must conform to the rules set forth in this book and to the National Electrical Code and be approved by a recognized inspection agency. The only exception to this requirement is for residential services where the change involves only the service entrance conductor between the point of attachment and the meter socket and/or the meter socket itself.

The Company reserves the right to require an approval when major renovations are made to interior wiring systems, when equipment is damaged by fire, flood or a similar incident, or when service to an existing building has been disconnected for more than one year.

3.6 Right To Refuse Service

Company reserves the right to refuse or discontinue service if Customer's wiring, equipment or meter location is unsafe,

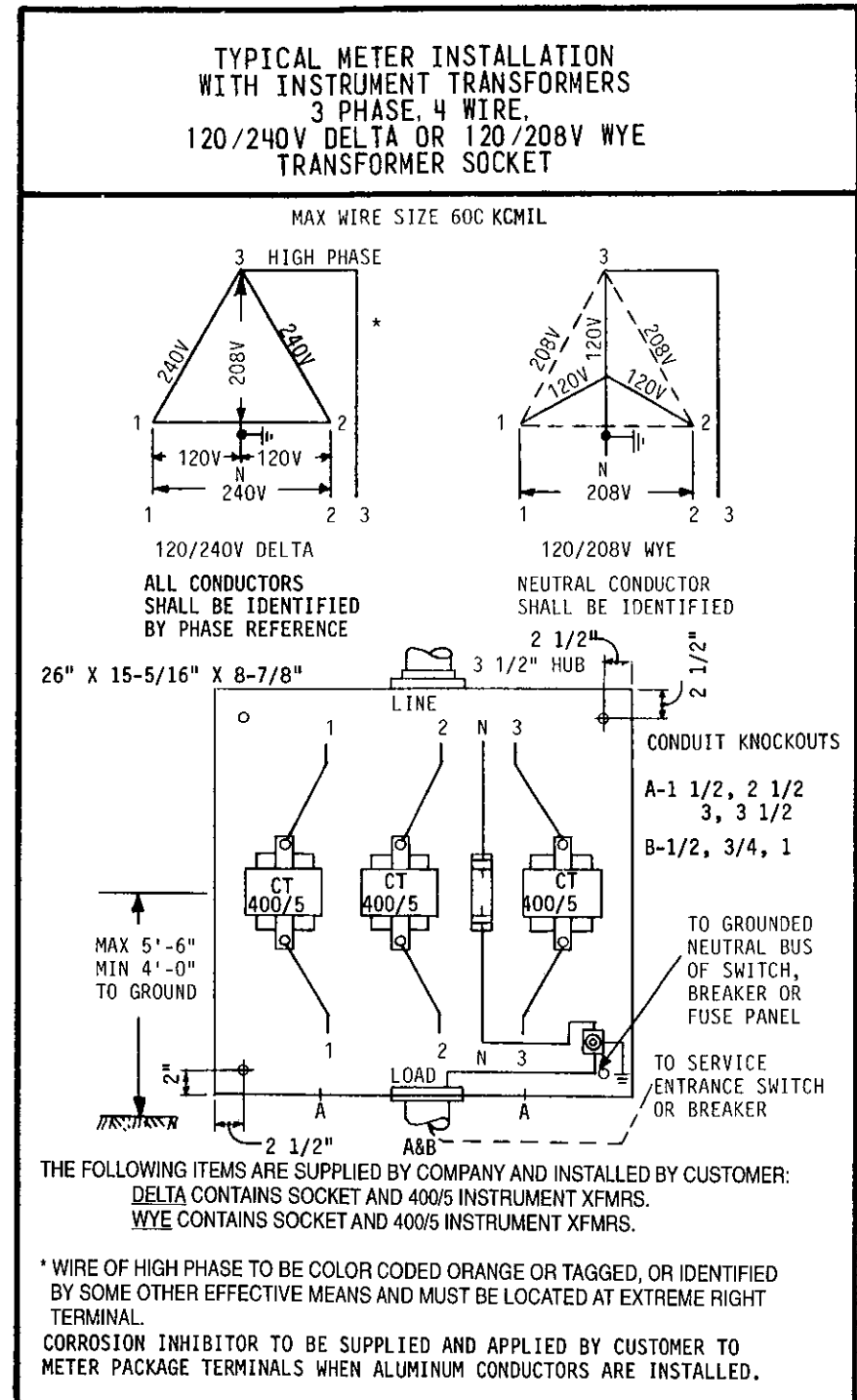
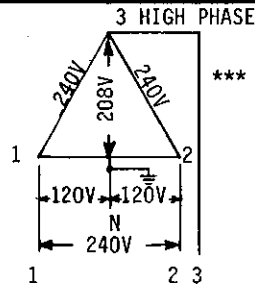


FIGURE 20

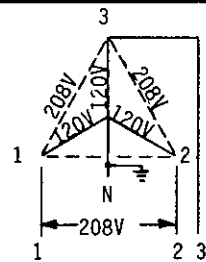
TYPICAL METER INSTALLATION 3 PHASE, 4 WIRE 120/240V DELTA OR 120/208V WYE SELF CONTAINED METER SOCKET



120/240V DELTA
ALL CONDUCTORS
SHALL BE IDENTIFIED
BY PHASE REFERENCE

METER SOCKETS SUPPLIED BY CUSTOMER, INSTALLED BY CUSTOMER.

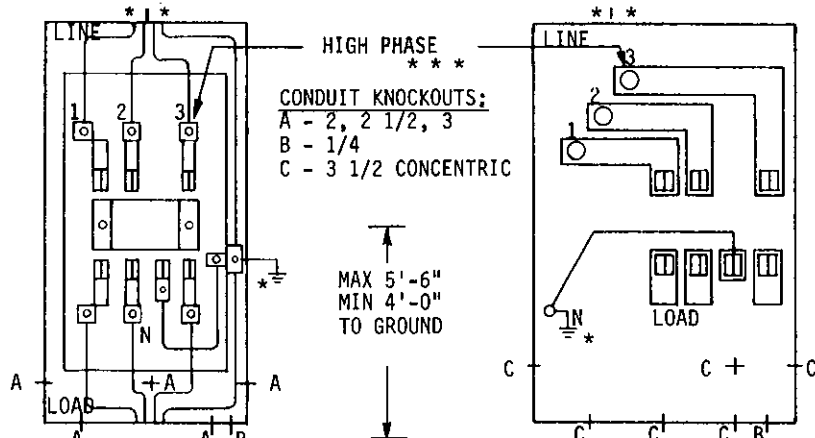
NOTE: SIDE AND BACK KNOCKOUTS NOT TO BE USED WITH CONDUCTORS LARGER THAN 350 KCMIL.



120/208V WYE
NEUTRAL CONDUCTOR
SHALL BE IDENTIFIED

RATED 200 AMPERES
MAX WIRE SIZE 350 KCMIL
13W X 19H X 5D

RATED 200 AMPERE
MAX WIRE SIZE 500 KCMIL
16W X 20H X 5D



*APPROVED GROUND SEE FIG. 6

CONNECTION MAY BE ELIMINATED IF RIGID METAL CONDUIT, IMC OR ELECTRICAL METALLIC TUBING IS USED. THREADED COUPLINGS MUST BE WRENCH TIGHT AND THREADLESS COUPLINGS MUST BE HAND TIGHT.

***COVER PLATE OR INTERCHANGEABLE HUBS AVAILABLE.

***WIRE OF HIGH PHASE TO BE COLOR CODED ORANGE OR TAGGED, OR IDENTIFIED BY SOME OTHER EFFECTIVE MEANS AND MUST BE LOCATED AT EXTREME RIGHT TERMINAL.

or does not meet Company rules, or is harmful to the service of other Customers, or if certificate of electric approval is not received.

3.7 Service Entrance

Customer shall furnish all service entrance equipment and branch circuit wiring. The Customer is responsible for providing service entrance equipment with overcurrent protective devices with short circuit current ratings equal to the available short circuit current but in no case less than 10,000 amperes.

3.8 Connection to Company's Facilities

3.8.1 Residential Customers

The Company will provide connectors and make the physical connection between Company's service and Customer's service entrance conductors.

3.8.2 Commercial and Industrial Customers

Overhead Service

- Company will provide connectors and make connections between Customer's service entrance conductors and Company's service drop conductors at point designated by Company when Customer's service entrance conductors are 750 kcmil or smaller and not more than one entrance cable/conduit per Customer.
- Customer supplies and installs suitable equipment to readily connect Company's service drop through use of single set of wire attachments when there is more than one service entrance cable/conduit per Customer. Company makes connection between Customer's service entrance conductors and Company's service drop.
- Customer supplies Company approved connectors when Customer's service entrance conductors are larger than 750 kcmil. Company makes connection between Customer's service conductors and Company's service drop.

FIGURE 19

Underground Service

a. Pad Mounted Transformers

Customer supplies connectors and makes connections between Customer's service entrance conductors and secondary bushings of pad mounted transformer.

When Customer's service entrance conductors cannot be directly connected to secondary bushings of transformer due to number of conductors per phase, Customer shall provide and connect Company approved secondary spade extenders to transformer bushings using proper strain-relieving hardware. Spade extender is limited to 12 parallel conductors per phase. Customer connects service entrance conductors to spade extender.

b. Underground Service from Overhead Facilities

Connection of Customer's service conductors is made according to a, b and c under **Overhead Service**.

3.9 Attachments on Company's Facilities

Attachments of Customer's facilities on Company's poles or other property are not desirable for safety and aesthetics. Attachments that must be made shall only be made after approval by Company.

3.10 Meters

All necessary meters will be furnished and installed by Company.

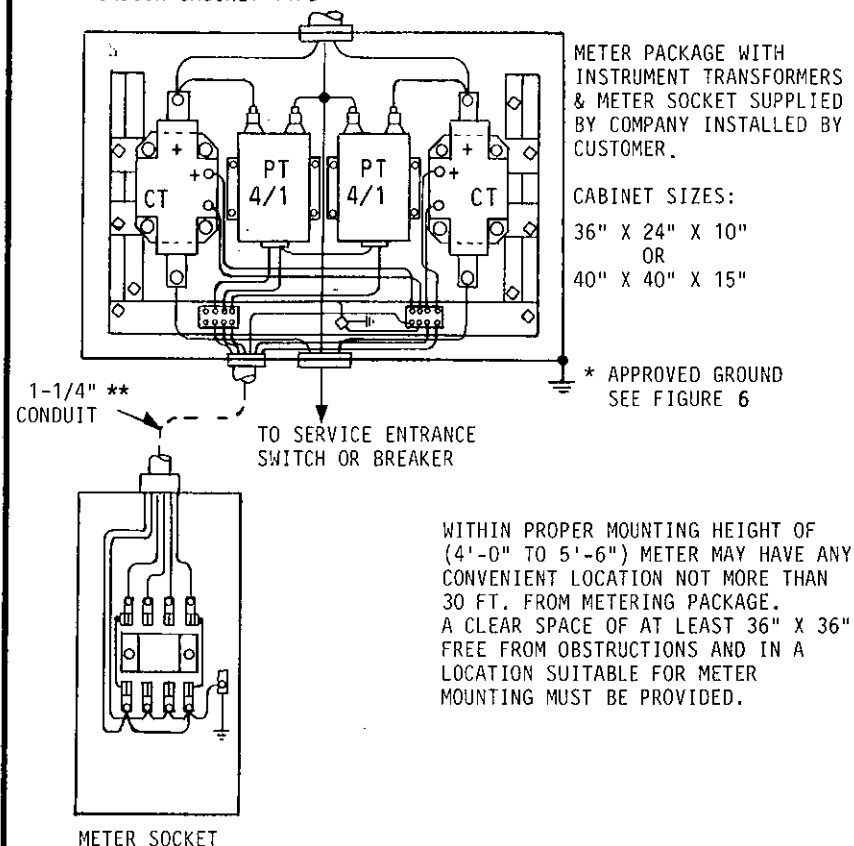
3.11 Seals

All meters and all points of access to unmetered Customer wiring will be sealed by Company. All cabinets, switch boxes, pull boxes and terminal boxes used inside or outside the building which contain unmetered wires, must be made sealable by Customer before service will be supplied. Where equipment is not arranged for sealing, 1/8 inch diameter holes shall be provided by Customer for sealing purposes. All

TYPICAL METER INSTALLATION WITH INSTRUMENT TRANSFORMERS 3 PHASE, 3 WIRE, 480V ALL CONDUCTOR SIZES

CONSULT COMPANY FOR APPLICATION

INDOOR CABINET TYPE



WITHIN PROPER MOUNTING HEIGHT OF (4'-0" TO 5'-6") METER MAY HAVE ANY CONVENIENT LOCATION NOT MORE THAN 30 FT. FROM METERING PACKAGE. A CLEAR SPACE OF AT LEAST 36" X 36" FREE FROM OBSTRUCTIONS AND IN A LOCATION SUITABLE FOR METER MOUNTING MUST BE PROVIDED.

CORROSION INHIBITOR (SUPPLIED BY CUSTOMER) TO BE APPLIED BY CUSTOMER TO METER PACKAGE TERMINALS WHEN ALUMINUM CONDUCTORS ARE INSTALLED.

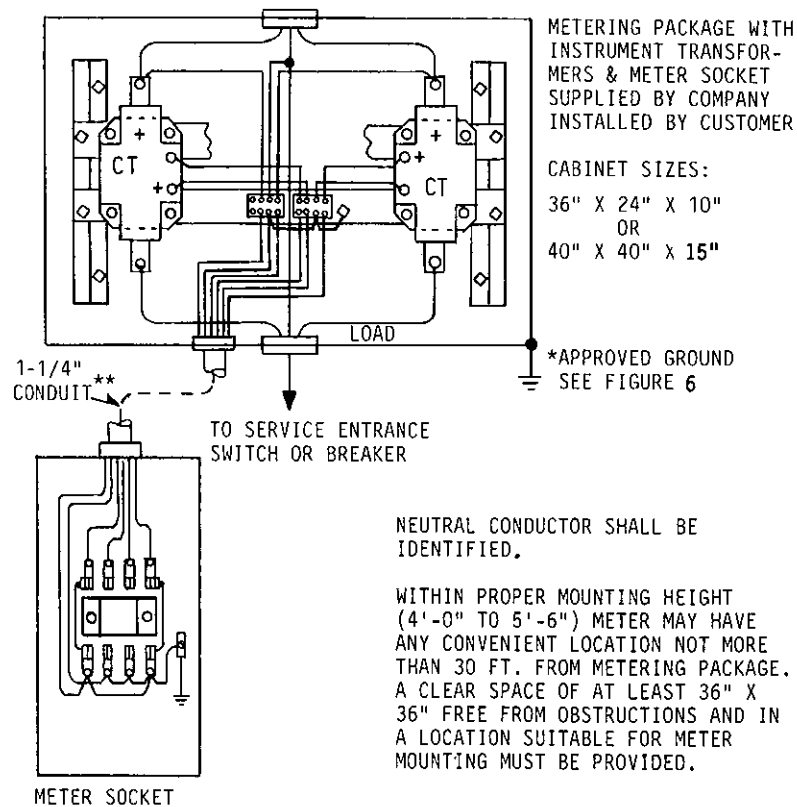
*CONNECTION MAY BE ELIMINATED IF RIGID METAL CONDUIT, IMC OR ELECTRICAL METALLIC TUBING IS USED. THREADED COUPLINGS MUST BE WRENCH TIGHT AND THREADLESS COUPLINGS MUST BE HAND TIGHT.

**I.M.C. OR RIGID METAL CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. METER CABLE FURNISHED AND INSTALLED BY COMPANY.

FIGURE 18

TYPICAL METER INSTALLATION WITH INSTRUMENT TRANSFORMERS INDOOR CABINET SINGLE PHASE, 3 WIRE, 120/240V,

CONSULT COMPANY FOR APPLICATION
THIS METERING PACKAGE IS USED FOR CONDUCTORS GREATER THAN 500 kcmil
OR WITH PARALLEL SERVICES



*CONNECTION MAY BE ELIMINATED IF RIGID METAL CONDUIT, IMC OR ELECTRICAL METALLIC TUBING IS USED. THREADED COUPLINGS MUST BE WRENCH TIGHT AND THREADLESS COUPLINGS MUST BE HAND TIGHT.

**I.M.C. OR RIGID METAL CONDUIT FURNISHED AND INSTALLED BY CUSTOMER. METER CABLE FURNISHED AND INSTALLED BY COMPANY.

CORROSION INHIBITOR (SUPPLIED BY CUSTOMER) TO BE APPLIED BY CUSTOMER TO METER PACKAGE TERMINALS WHEN ALUMINUM CONDUCTORS ARE INSTALLED.

entrance conduit fittings used outside the building ahead of the meter must have non-removable covers. All such fittings used inside the building ahead of the meter, if not of the non-removable cover type, must be drilled for sealing. The breaking of Company seals by unauthorized persons, or tampering with meters, or with any wiring equipment ahead of the meter is prohibited by law.

3.12 Access to Customer's Premises

Customer shall provide Company's employees free access to Customer's premises, at all reasonable hours for purposes necessary or proper in connection with supplying service. Company's authorized agents who seek to enter upon Customer's premises will identify themselves by proper credentials furnished by Company for such purposes.

3.13 Vaults

When conditions are such that it is necessary to install transformers within a building on the Customer's premises, the Customer will provide a suitable vault to house the transformers and accessories.

Customer shall secure vault specifications from Company and consult the Company regarding the location and construction of transformer vaults while building plans are being prepared.

Vaults or rooms shall be so located as to be easily accessible by direct entry from outside the building, for the purpose of installation, maintenance and removal of Company equipment.

Transformer vaults should contain only Company-owned transformers and their auxiliary equipment.

Vaults must be of standard fireproof construction, be adequately ventilated and drained, and shall comply in all respects with the National Electrical Code.

The Company reserves the right to serve other Customers from the Company's equipment located in vaults on the Customer's premises, provided this does not interfere with the Customer's service.

3.14 Antennas

Antennas for radio or television receiving or broadcasting equipment shall never be placed under, over or in such locations that may cause accidental contact with Company's lines. Disregarding this rule may cause accidents or unsatisfactory operation of the equipment.

3.15 Swimming Pools

The Company restricts the placing of a swimming pool under or in close proximity to its existing service drop or other wiring. See Figure 3.

If a Customer desires to place a swimming pool in a prohibited area, upon the Customer's written request and payment of all costs involved, the Company will relocate all necessary wiring whenever feasible.

3.16 Standby Service

Customer's standby generating equipment shall be installed so that there cannot be any electrical connection to Company's service. See Figure 26.

4. TYPES OF SERVICE AVAILABLE

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

FIGURE 17

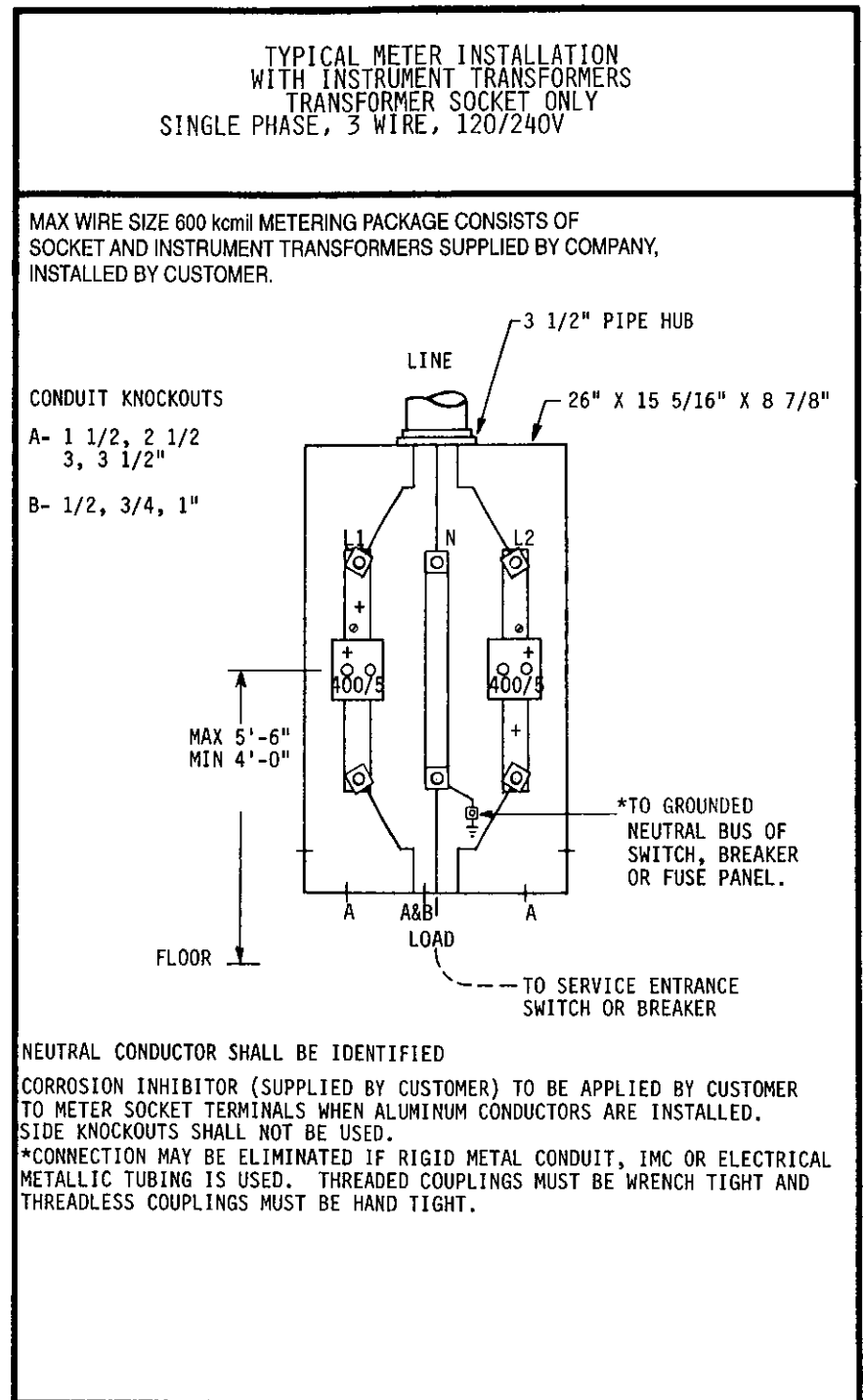
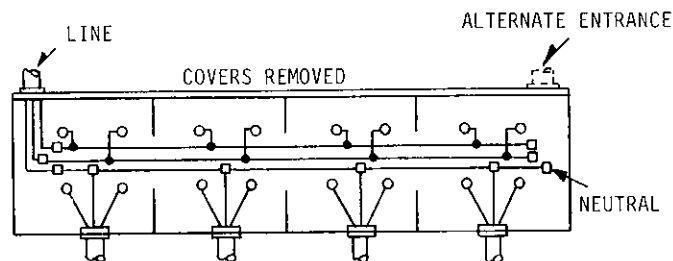
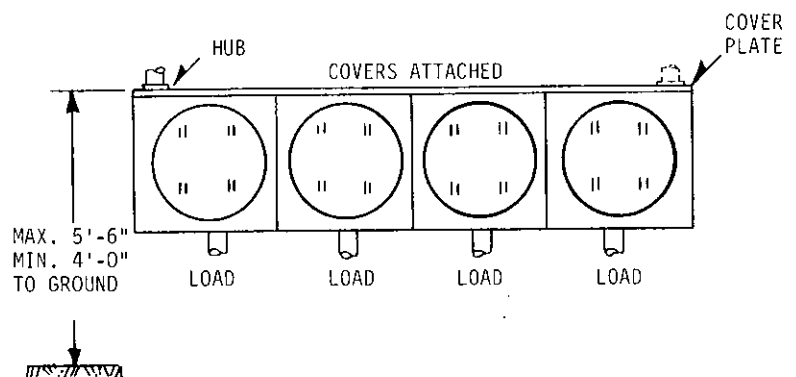


FIGURE 16

GROUP METER SOCKET CONNECTIONS SINGLE PHASE, 3 WIRE, 120/240V



GROUP METER SOCKETS	
GROUP	APPROXIMATE SIZE
2	22 1/2" X 10" X 3 3/4"
3	30" X 10" X 3 3/4"
4	37 1/2" X 10" X 3 3/4"
5	45" X 10" X 3 3/4"
6	52 1/2" X 10" X 3 3/4"

NOTE:

1. ALL FITTINGS TO METER TROUGH SHALL BE WATERPROOF. METER SOCKETS MUST BE *RINGLESS TYPE, UL LISTED, SUPPLIED AND INSTALLED BY CUSTOMER. NEUTRAL CONDUCTOR SHALL BE IDENTIFIED.
2. EACH METER POSITION SHALL BE PERMANENTLY IDENTIFIED (SEE SEC. 5.7.1)

* SEE SEC. 5.8.1

- 4.2** The following services are generally available from secondary voltage lines throughout the territory served by Company:

Phase	Wires	Voltage	Type of Distribution System Available		Note
			Over-head	Under-ground	
1	2	120	yes	no	1
1	3	120/240	yes	yes	4, 6
3	4	120/240	yes	no	2, 4, 6
Delta					
3	4	120/208	yes	yes	4, 6
Wye					
3	4	277/480	yes	yes	4
Wye					
3	3	480	yes	no	3
Delta					

Notes:

1. Limited to Customer installations with only one branch circuit.
2. This service will be supplied to Customers requesting either 120/240 volt, 3 phase, 4 wire; or 240 volt, 3 phase, 3 wire service. Customer will install a 4 wire entrance for either service. Customer, upon securing 120/240 volt, 3 phase, 4 wire combination power and light service, should be aware of and agree to accept voltage variation.
3. May be available in certain areas under conditions prescribed by Company.
4. To avoid the necessity of duplication of distribution facilities, Company reserves the right to refuse this service voltage to Customers in certain areas.
5. Highway Interchange lighting only.
6. For Customers requesting three phase service and single phase service, service will be supplied in accordance with NEC Article 230-2.

- 4.3** The following services from higher voltage lines are available in certain sections of the territory served by Company:

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

5. SERVICE AT LESS THAN 600 VOLTS

5.1 Company Service Drop

- 5.1.1** Company will furnish and install a permanent overhead service drop generally not to exceed 100 feet in length from its overhead distribution system to Customer's building.
- 5.1.2** Company shall not be required to furnish or install more than one service drop for each building served, or more than one meter for each establishment, except under any of the following conditions, which must be referred to Company for prior and specific approval before proceeding with any work:
- Where required for types of service of different phase or voltage.
 - Where required by law.
 - Where required for fire pumps or emergency lighting or public safety regulations.
 - Where a single property extends over an area which makes it impractical to serve through one service drop.
 - Where Company needs more than one service drop to supply Customer's load requirements.
 - Where multi-occupancy buildings have no common locations for service equipment which is accessible to all occupants.

FIGURE 15

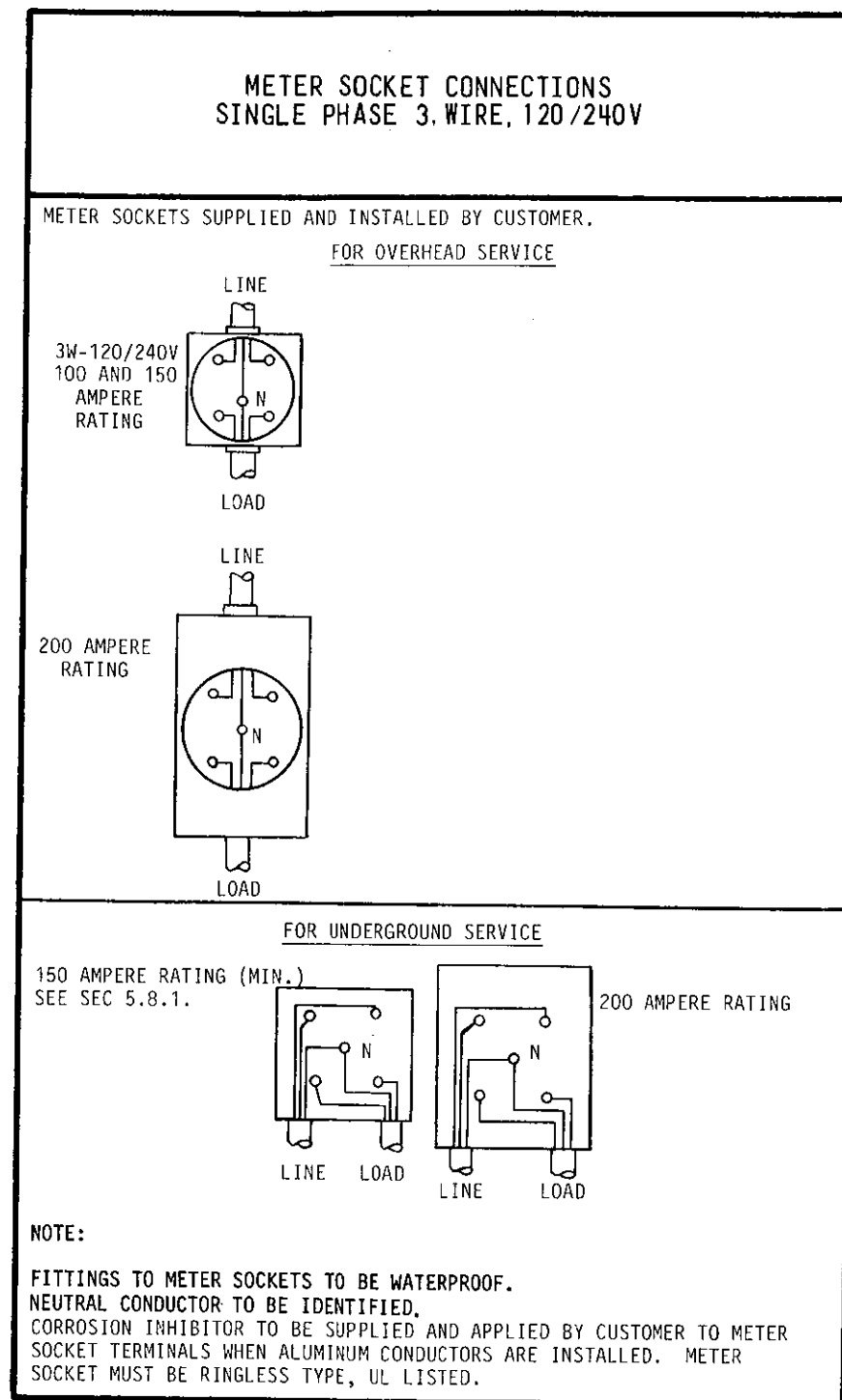
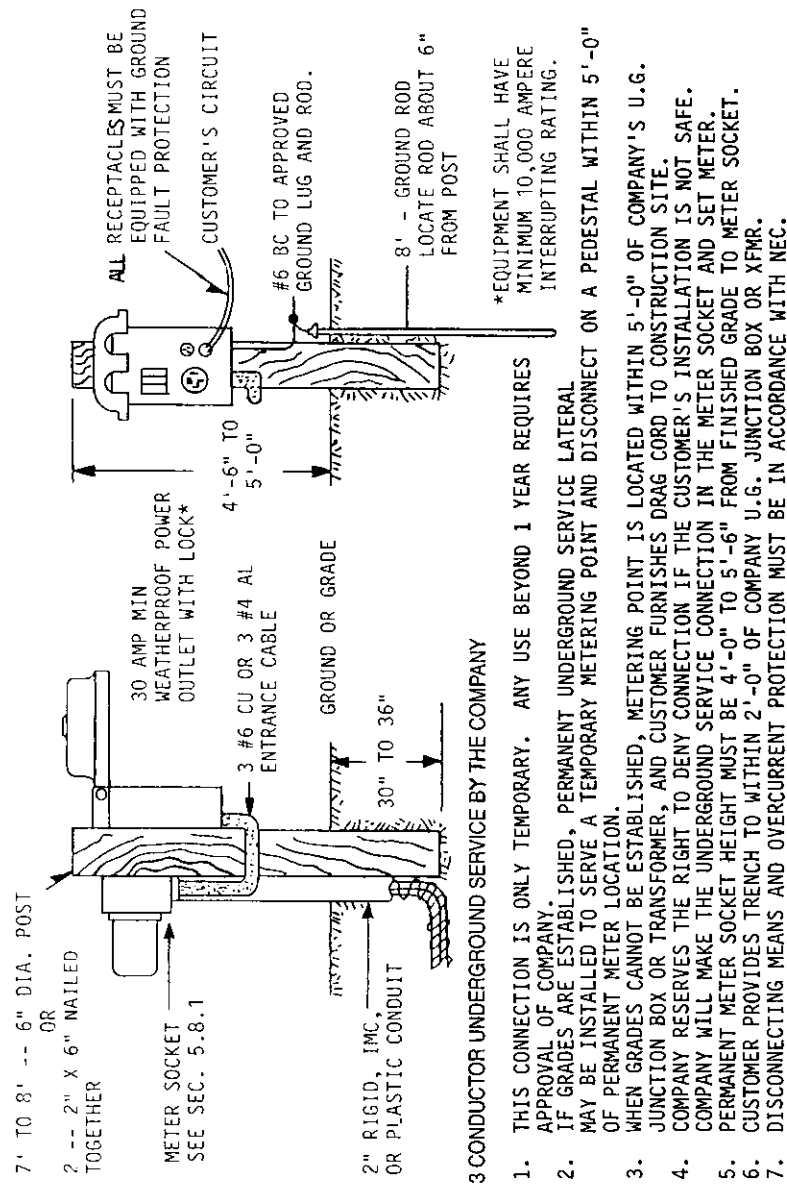


FIGURE 14

TEMPORARY SERVICE DETAILS RESIDENTIAL UNDERGROUND SERVICE



5.2 Overhead Service Entrance

5.2.1 Overhead service entrances must terminate on a pole, structure or marked point on exterior of building with adequate mechanical strength to support Company's service drop at a point where Company's service drop can be readily connected through the use of a single set of wire attachments.

Company will provide mechanical hardware necessary for the support of Company's service drop conductors. Customer will install hardware at a point designated by Company. If hardware cannot be mounted on exterior wall of Customer's building, Customer must supply and install alternate rigid support. Company reserves right to approve or deny alternate support design.

5.2.2 Service entrances shall have at least twelve inches clearance from any telephone or signal wires.

5.2.3 The service entrance shall be so located that Company's service drop will not cross over:

- Property other than that of the Customer served, unless previous consent of the owner of such property is obtained.
- Structures, facilities or areas not permitted by codes or Company standards or deemed inaccessible or hazardous.

5.2.4 Overhead service entrances up to 600 volts should terminate at a point no less than 12 feet above ground. The point at which the overhead service entrance is connected to Company's service drop must be of sufficient height to allow a minimum clearance at any point between the building and Company's distribution system, as follows:

- Crossing or along streets in urban districts, crossing roads in rural districts, public parking lots, and areas subject to truck traffic 18 feet
- Above street railway trolley wires 4 feet
- Above or below telephone and cable television wires or cables 2 feet

5.2.5 Where Customer's property is not of sufficient height to provide this clearance, a suitable support for attaching Company's service drop must be provided. See Figure 1 and 4.

5.2.6 Overhead service entrances must be run in exposed conduit, cable or busways and firmly attached in a neat and inconspicuous manner avoiding unnecessary and complicated wiring. Rigid conduit will be considered outside a building when surrounded by two inches or less of concrete, or when located within a brick wall. Cable, run through the opening of concrete block three or more inches thick located within a building wall, will also be considered outside a building. A minimum of two feet of each service entrance wire must project beyond the outer protective covering of the service entrance for connection to Company's service drop. The service head or gooseneck in service entrance cable shall be located above the point of the attachment of the service drop conductors.

5.3 Underground Service Entrance

5.3.1 Customers desiring underground service shall contact Company to obtain the specifications, cost and other information relative to this type of service. The Customer is responsible for **all** trenching and backfilling within Company specifications. **Before you dig - contact PENNSYLVANIA ONE-CALL-1-800-242-1776.**

5.3.2 Company will install electrical distribution facilities underground for the following customers:

- Residential developments including mobile home developments when there are five or more adjoining unoccupied lots.
- Multi-family buildings in which there are five or more single family residences.

Contact Company to obtain information on costs to Customer relative to this directive.

5.3.3 Single family residential underground service lateral installations (up to the meter socket) will be installed and maintained by the Company for an installation charge. Customer is responsible for installation of meter socket, service entrance conductors, and all trenching and backfilling. See Figure 5.

FIGURE 13

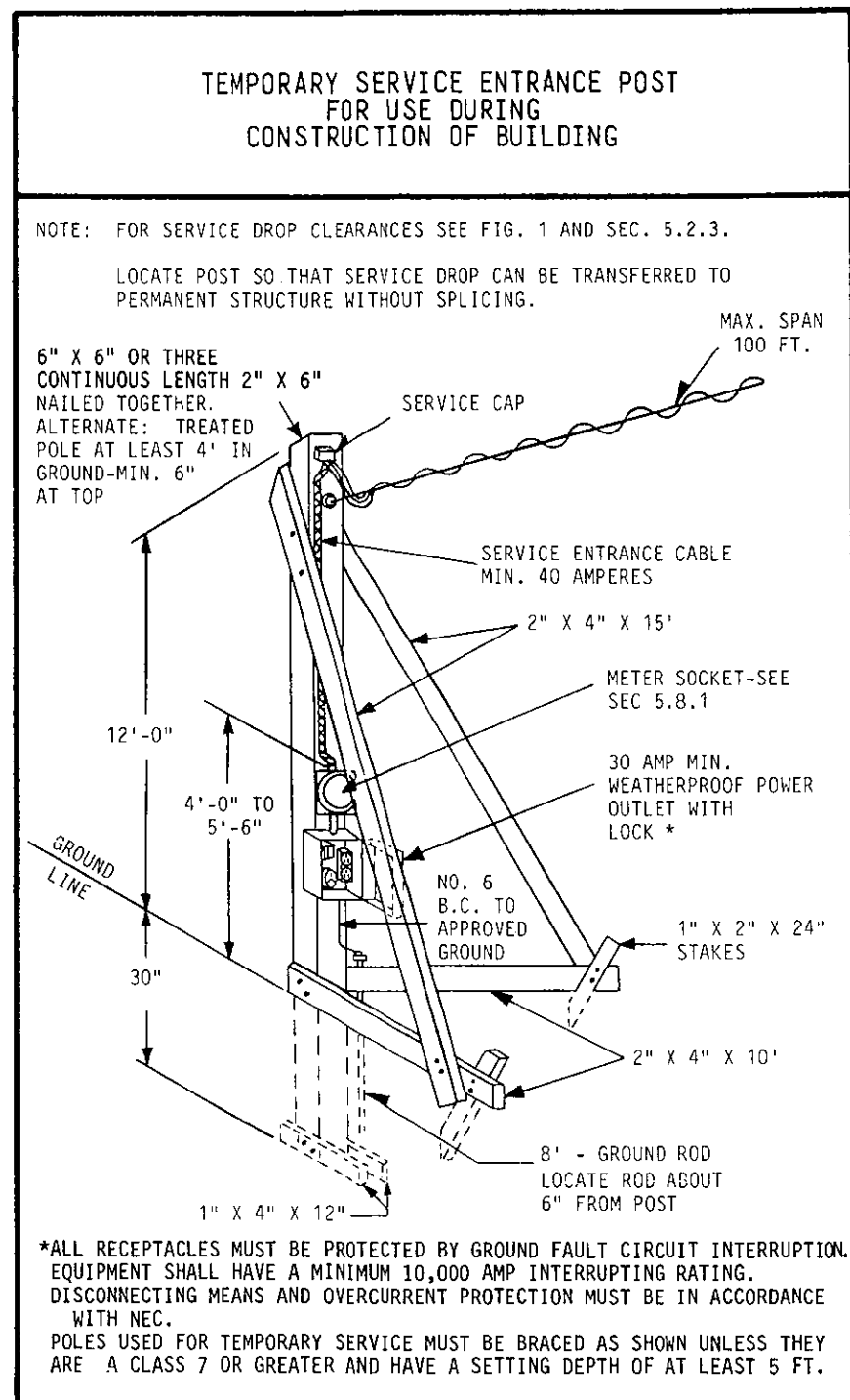


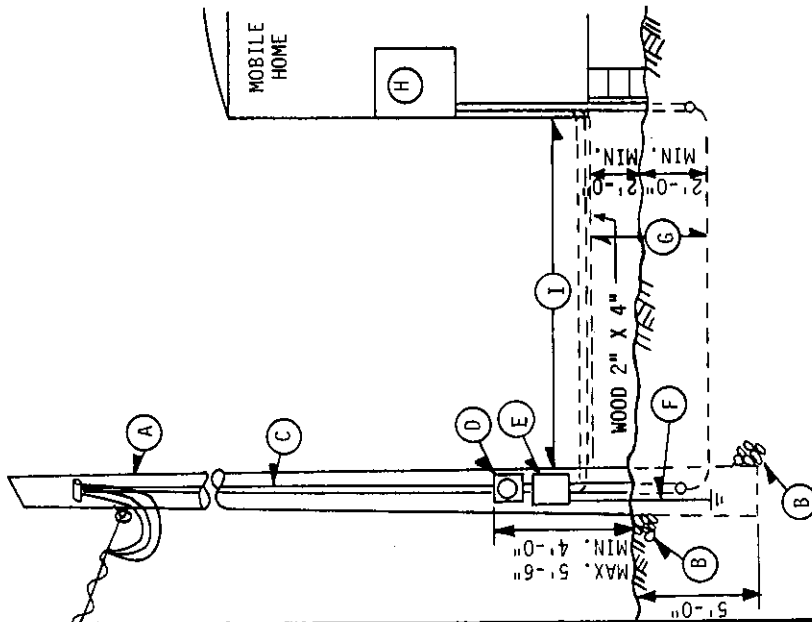
FIGURE 12

TYPICAL OVERHEAD MOBILE HOME SERVICE FOR INDIVIDUALLY LOCATED HOMES

CUSTOMER INSTALLS FOLLOWING:

- A. 25' PRESSURE TREATED WITH PRESERVATIVE POLE, CLASS 7, WITH COMPANY APPROVAL POLE HEIGHT MAY BE LESS IF CLEARANCES SHOWN ON FIGURE 1 ARE MET.
- B. ROCK BRACING TO HOLD POLE AGAINST SERVICE DROP PULL.
- C. SERVICE ENTRANCE CONDUCTORS - 100A MINIMUM.
- D. METER SOCKET.
- E. SERVICE EQUIPMENT - MINIMUM 100A, EQUIPMENT SHALL INCLUDE MEANS TO DISCONNECT PERMANENT-INSTALLED FEEDER OF 100A CAPACITY AND AT LEAST ONE OTHER PERMANENTLY INSTALLED CIRCUIT. MAY ALSO INCLUDE ONE OR MORE GROUNDING TYPE RECEPTACLES. EQUIPMENT SHALL HAVE MINIMUM 10,000A INTERRUPTING RATING. MAXIMUM DISTANCE FROM E TO HOME - 30 FT.
- F. APPROVED GROUND - SEE FIGURE 6.
- G. FEEDER - 4-WIRE. OVER 50A USE PERMANENT WIRING METHOD. IF UNDERGROUND, MINIMUM DEPTH - 2 FT.
- H. MOBILE HOME PANEL (RECOMMENDED MINIMUM-100A)
- I. MAXIMUM DISTANCE FOR ABOVE GROUND FEEDER ON 2" X 4" WOOD SUPPORT - 3 FT.

NOTE: MAXIMUM NUMBER OF METERS GROUPED AT ONE LOCATION IS FOUR. SEE FIGURE 16.



- 5.3.4. Multi-family residential underground service laterals that terminate at meters located on the outside of the building will be installed and maintained by the Company.

When the meter locations are within the building, the Customer will provide, install and maintain the service lateral conductors from the meter socket to a secondary voltage source location, designated by the Company, outside the building.

- 5.3.5 Commercial and Industrial underground secondary service lateral conductors will be installed and maintained by the Customer.

- 5.3.6 Customer shall, if requested, provide a safe and suitable location for transformers, switches and associated equipment necessary for Company to provide adequate and safe service. Customer shall provide concrete pad and vaults when required by Company. Concrete pads and vaults shall meet Company's specifications.

5.4 Service Entrance Conductor Sizes

- 5.4.1 Service entrance conductors shall have no less than 100 amperes nominal capacity, except for installations having only one branch circuit, in which case they shall have no less than 20 amperes nominal capacity.
- 5.4.2 Where two installations of more than one branch circuit each are combined, the common service entrance conductors shall have no less than 150 amperes nominal capacity; where three or four installations are combined, 175 amperes; and where five or six are combined, 200 amperes.
- 5.4.3 Correspondingly greater capacity than specified above shall be provided where more than six installations are served through common service entrance conductors. Company shall be consulted so that proper capacities may be specified before the entrance is installed.
- 5.4.4 For installations other than residential, conductor capacity less than specified above may be provided with approval of Company, but shall have no less than 20 amperes nominal capacity.

5.4.5 For service entrance conductor sizes for mobile homes see Section 5.13.

5.5 Meter Location

5.5.1 Customer must provide a suitable meter location and adequate space for necessary meter and meter installations with a minimum 30 inch clear space in front so that the meter may be read and inspected. All meters on the exterior of buildings should be located within 10 feet of the nearest building corner to the Company facilities. Company reserves the right to designate the exact meter location.

5.5.2 For residential installations, meter locations shall be on the exterior of the buildings, except that group installations of more than six meters may be installed on the interior of building with Company approval.

5.5.3 For commercial and industrial service, meters will be installed either on the exterior or interior of buildings.

5.5.4 For CATV use, Company-owned poles may be used. Consult Company for installation requirements.

5.5.5 When desirable and upon approval by Company, meters may be located on Customer's pole. A pole, when used, shall be yellow pine, cedar or equivalent, properly treated and providing proper clearances as defined in Section 5.2. The pole shall have a setting depth of at least five feet and shall not be smaller than Class 7. See Figure 8.

5.5.6 Company will not accept the following as meter locations:

- Attics, closets, bedrooms, bathrooms, coal bins, air or elevator shafts.
- Over sinks, basins, doors, windows.
- Locations which are in close proximity to moving objects, such as belts, shafting, engines, motors, machinery, or vehicles.
- Wooden partitions or stairways, or in any location subject to excessive vibration, or where meters may be subject to damage.
- Locations which are dangerous to meter readers or testers, or where conditions would prevent an inspector from standing in front of the meter to test or read.

FIGURE 11

TYPICAL UNDERGROUND MOBILE HOME SERVICE FOR PARKS OR INDIVIDUALLY LOCATED HOMES

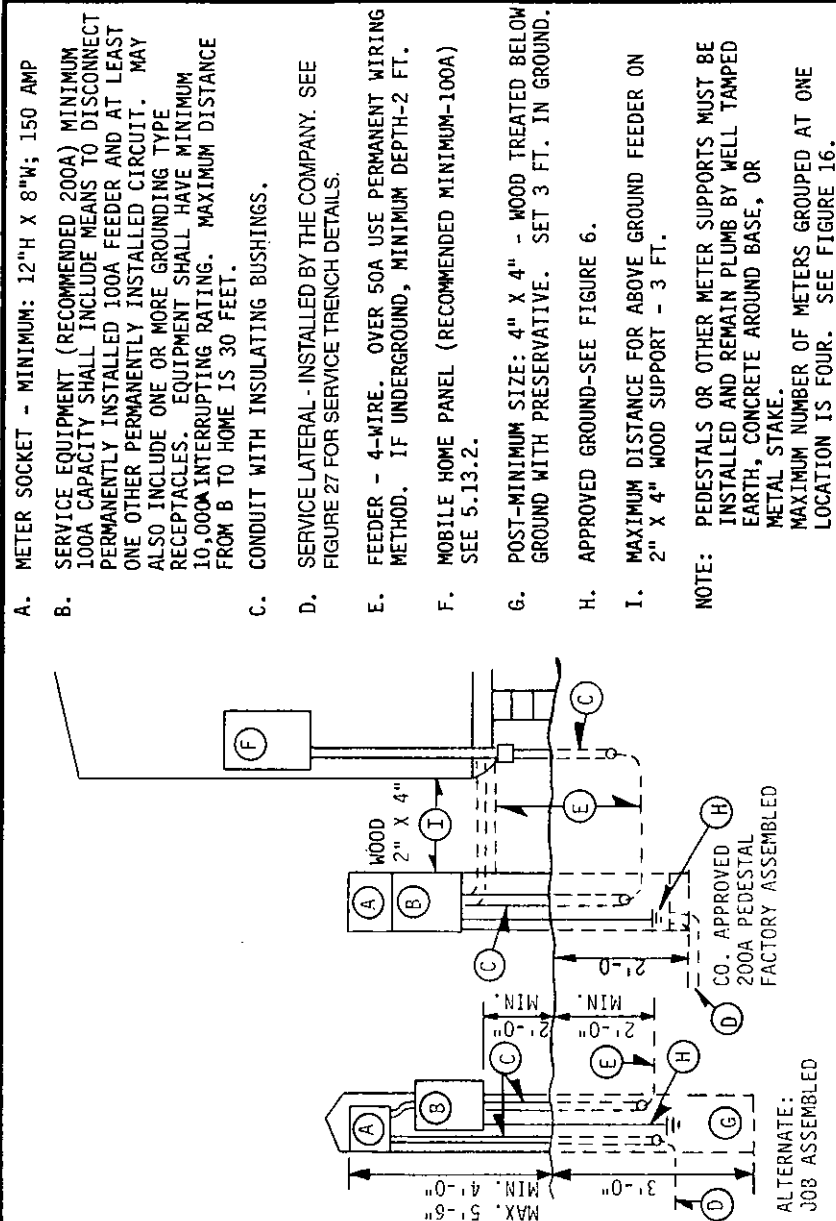
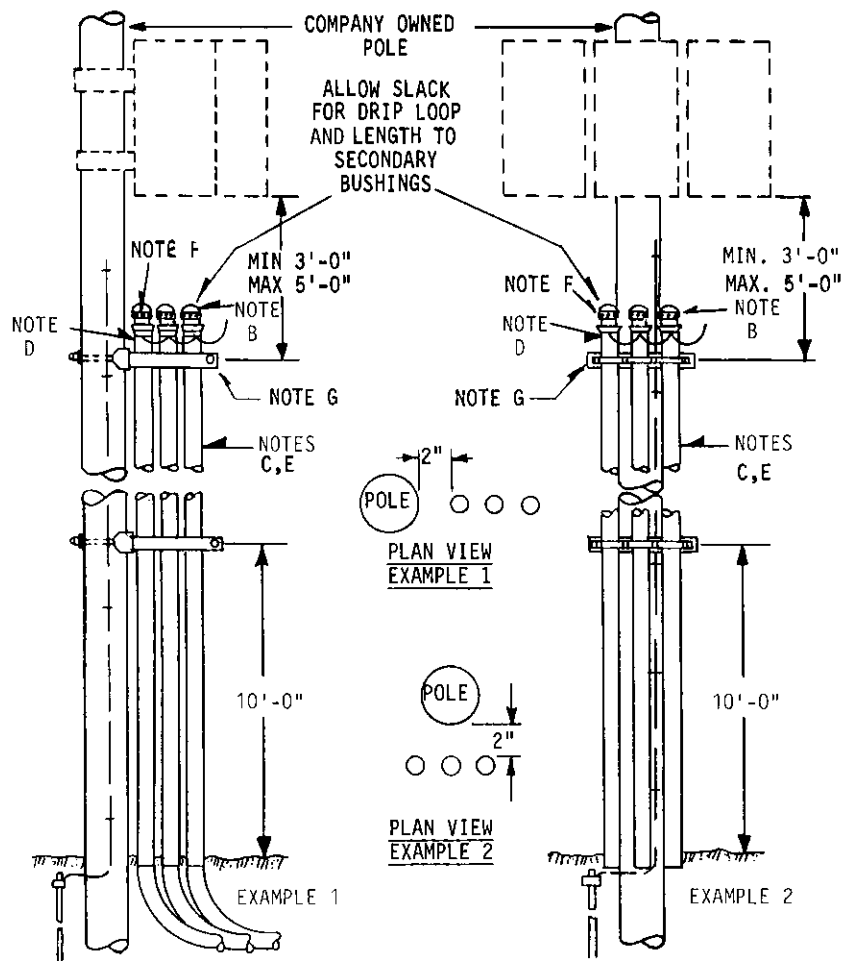


FIGURE 10

TYPICAL UNDERGROUND COMMERCIAL OR INDUSTRIAL SERVICE ENTRANCE THREE PHASE, 3 OR 4 WIRE



NOTES:

- A. CUSTOMER TO CONTACT COMPANY PRIOR TO COMMENCING INSTALLATION.
- B. WEATHERHEAD REQUIRED.
- C. INSTALLATION TO CONFORM TO LATEST EDITION OF N.E.C.
- D. ALL CONDUITS TO BE GROUNDED AND CONNECTED TO SECONDARY NEUTRAL BUS EXCEPT FOR 3W - 480V SERVICE.
- E. WROUGHT IRON OR IMC CONDUIT FURNISHED AND INSTALLED BY CUSTOMER.
- F. SEE SECTION 3.8.2 FOR CONNECTION OF CONDUCTORS.
- G. STAND OFF BRACKET REQUIRED FOR TWO OR MORE CONDUITS.

- f. Within transformer enclosures and vaults.
- g. Locations occasionally subject to high water. In such flood areas, a meter location above high water level must be provided.
- h. On Company-owned poles (exception: CATV use and service at more than 600 volts).

5.6 Meter Relocation

- 5.6.1 Where alterations to a building or its wiring require a change in meter locations, Company will, upon authorization, relocate the meter. Consult Company for a service charge that may be applicable.
- 5.6.2 A service entrance complying with the requirements contained in these rules must be provided by Customer at the new meter location.

5.7 Group Meter Installations

- 5.7.1 In general, in buildings where more than one meter is required, provisions shall be made for grouping meters at one place accessible to all Customers. See Figure 16. Each meter shall be permanently identified with its corresponding apartment, office or lot number. Marking shall be by stenciled paint, engraving, stamping or riveted metal tag. In buildings where conditions make it undesirable to group meters, separate installations can be made on approval of Company.
- 5.7.2 In large buildings, special conditions may make it desirable to group, on each floor or area, the meters for individual customers located on that floor or area. Detailed plans of such installations shall be submitted to Company for approval before construction is started or equipment purchased.
- 5.7.3 Individual service switches on group installations shall have a distinctive marking showing which portion of the building they supply. Such marking shall be permanently made and so placed that it will be clearly visible.

5.8 Meter Socket

5.8.1 The Customer will provide the required meter socket for each installation with necessary mounting screws and corrosion inhibitor for 120/240 volt, single phase, 3 wire services rated 200 amps or less (250 kcmil conductor or smaller).

All meter socket(s) shall be ringless, outdoor type, UL-listed, and have sufficient current-carrying capacity to match the ampacity of the service entrance conductors. The meter socket(s) shall have provision for service entrance conductor entry from the top when service from the Company is to be overhead. Socket(s) shall have provision for sealing and will be sealed by the Company. Minimum ampacity is 100 amperes. **For underground service**, the socket shall have a minimum ampacity rating of 150 amperes, minimum lug size for No. 3/0 wire and a minimum enclosure size of 12 inches high, 8 inches wide and 3-½ inches deep. There shall be a minimum of two sets of concentric knockouts that will accept two-inch conduit in the bottom plate for conductor entry and exit. Ring-type meter sockets are acceptable only with prior written approval from the Company.

A 4 terminal meter socket is required for a 120/240 volt, single phase, 3 wire service.

The Customer shall consult the company for the type of meter socket required for self-contained three phase services rated 200 amps or less.

The Customer will also furnish meter sockets for 120/240 volt, single phase, 3 wire services when sockets will be used as group mounted, mobile home pedestals and other special locations.

The Company will furnish all meter sockets, exclusive of group sockets, for any of the following conditions:

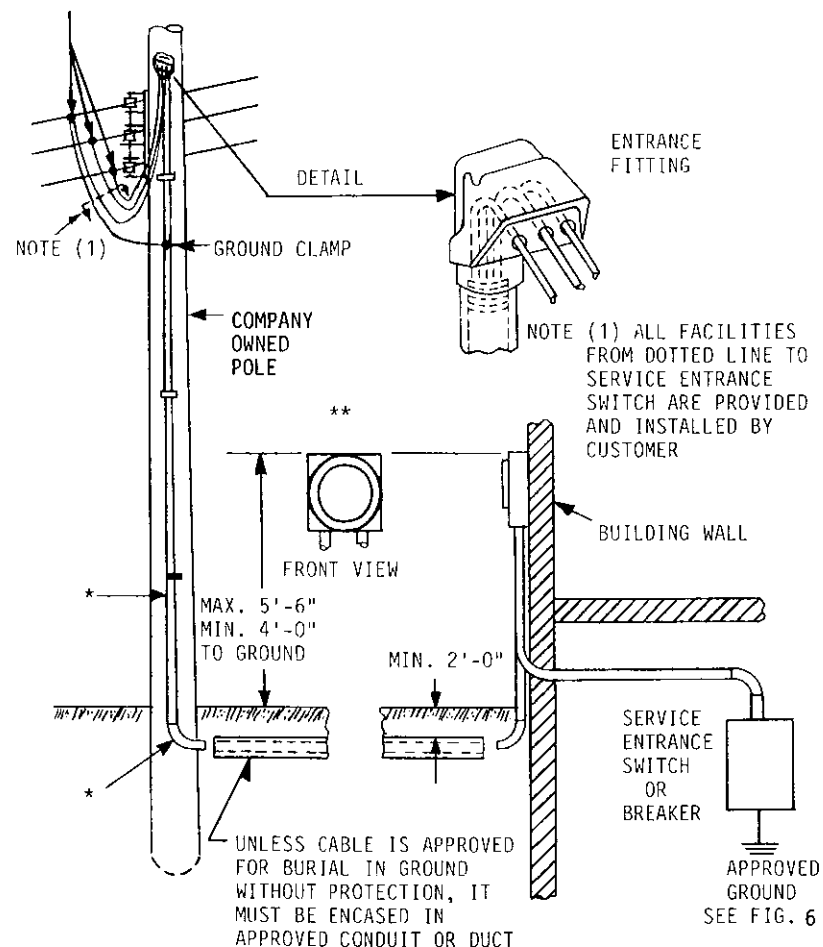
a. Current and potential transformers are required.

Inhibitor compound shall be applied by Customer to all aluminum conductor terminations.

FIGURE 9

TYPICAL UNDERGROUND COMMERCIAL OR INDUSTRIAL SERVICE ENTRANCE SINGLE PHASE, 3 WIRE, 120/240V

LEAVE 6' OF SERVICE CONDUCTORS BEYOND SERVICE WEATHER HEAD FOR CONNECTION TO POWER COMPANY SERVICE WIRES BY POWER COMPANY.

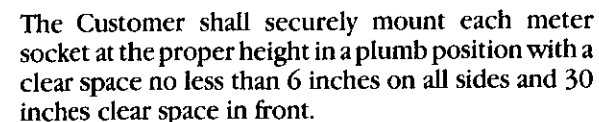


*CONDUCTORS TO BE PROTECTED BY GALVANIZED STEEL, WROUGHT IRON OR I.M.C. CONDUIT.

**SOCKET TO BE: 12"H X 8"W MIN. SIZE AND 150A MIN. RATING.

NEUTRAL SHALL BE IDENTIFIED. CUSTOMER TO CONTACT COMPANY PRIOR TO COMMENCING INSTALLATION.

TYPICAL POLE METER INSTALLATION
SINGLE PHASE, 3 WIRE, 120/240V
CUSTOMER OWNED



- 5.8.2** Meter sockets may be installed indoors only with prior written Company approval. Meter sockets located indoors shall be installed as near as possible to the point where service conductors enter the building and with adequate lighting for reading and testing provided.
- 5.8.3** Meter sockets located outdoors shall be installed in accordance with Figures 1, 2, 4, 5, 8, 9, 11 and 12. Cable connectors shall be of a type insuring a weatherproof seal between the cable and the socket.
- 5.8.4** Except for special metering purposes, meter sockets may not be used as junction boxes for making taps to service entrance conductors.

5.9.1 All metering current and potential transformers, cabinets, and related metering installation equipment will be furnished by the Company and installed by the Customer. Customer furnishes, installs, and maintains a sealable metal cabinet for housing Company's transformers. Company will make transformer metering equipment installation. Consult Company for details. See Figures 17, 18, 19, 21, 22, 23, 25, 26 and 27.

- 5.9.2** When busways are used for the service entrance conductors, metering transformers furnished by Company shall be mounted in the busway by Customer.
- 5.9.3** Metering transformers may be installed in Customer-owned vaults, cubicles, or on switchboards, when prior arrangements are made with Company.

5.10.1 Service entrance equipment (circuit breakers or fused switches) having a total capacity of no less than 100 amperes and meeting requirements of Section 3.7 shall be installed for each individual installation. A new individual residential occupancy

shall have service equipment which provides space in the panel for connection of at least three 240 volt major appliance circuits. These spaces shall be capable of supplying one 50 or 60 ampere circuit and two 30 ampere circuits. Where a Customer's installation consists of only one branch circuit, the service equipment may be smaller, but no less than 20 ampere capacity.

5.10.2 Service entrance switches or breakers smaller than those mentioned above for other than residential installations may be installed if approved by the Company.

5.10.3 For service entrance switches for mobile homes see Section 5.13.

5.11 Grounding of Service Entrances

5.11.1 All service entrances with a neutral conductor shall be provided with a common equipment and neutral ground on the line side of the disconnecting means. Service entrances which do not have a neutral conductor shall have an equipment ground only. All parts of service entrances such as conduits, metallic armor of cables, switch boxes, and junction boxes shall be suitably bonded together to insure continuity of the assembly to the grounding wire. The grounding electrode conductor shall be of copper or other corrosion-resistant material. The conductor may be solid or stranded, insulated or bare, with the carrying capacity and tensile strength in accordance with Article 250 of the NEC, but in no case, less than No. 6 copper. It must be run without splices or joints from a suitable connection in the service switch or breaker enclosure and connected to an approved grounding electrode.

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

- a. A metal underground water pipe in direct contact with the earth for 10 feet or more (including any metal well casing effectively bonded to the pipe) and electrically continuous to the points of connection of the grounding electrode conductor and the bonding conductors. A metal underground water pipe grounding electrode shall be

FIGURE 7
TYPICAL
WATER HEATER INSTALLATION

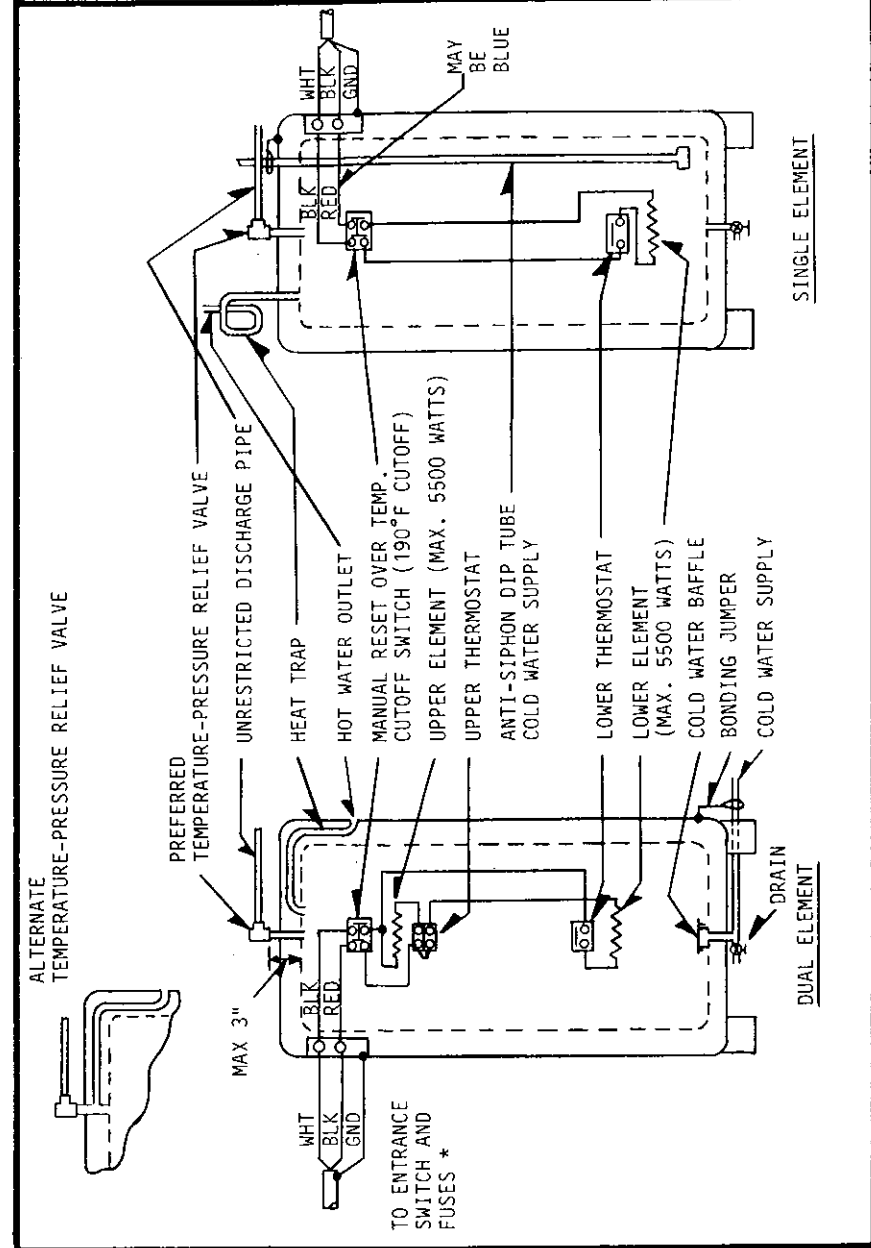
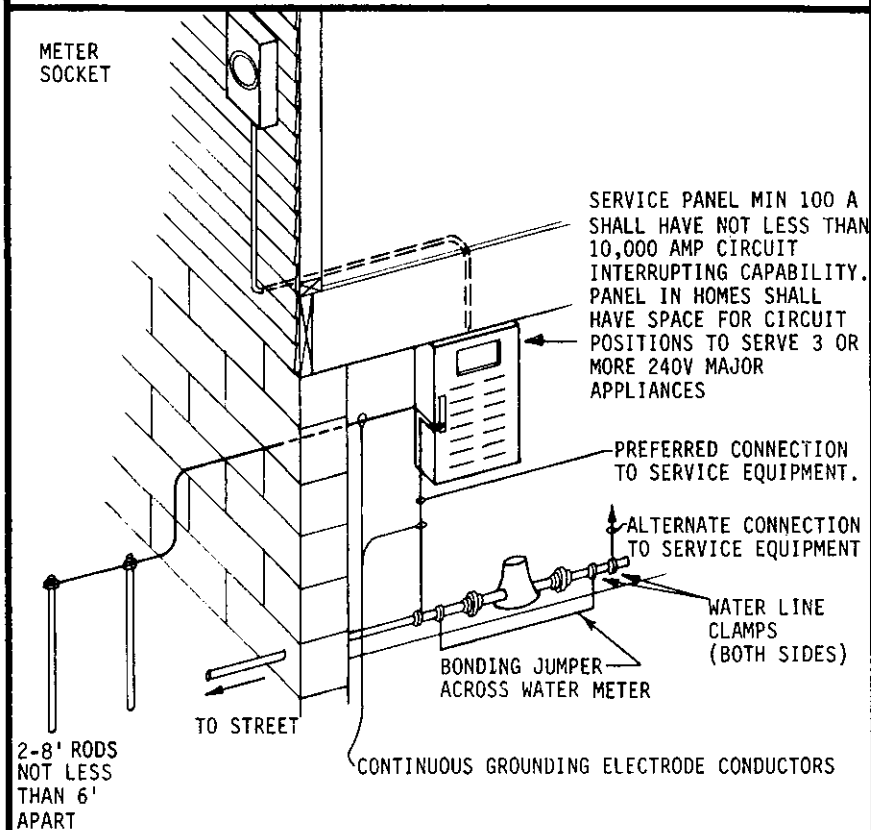


FIGURE 6

TYPICAL GROUNDING DETAILS



NOTES:

1. BONDING JUMPER TO BE INSTALLED IN ALL CASES WITH SUFFICIENT SLACK TO PERMIT REMOVAL OF WATER METER WITHOUT REMOVAL OF JUMPER.
2. SEE N.E.C. 250-94 FOR SIZE OF GROUNDING ELECTRODE CONDUCTORS.

supplemented by an additional grounding electrode of the type described in Paragraphs b, c and d below or in Paragraph 5.11.3. See Figure 6.

- b. The metal frame of the building where effectively grounded.
- c. An electrode encased by at least 2 inches of concrete located within and near the bottom of a concrete foundation or footing that is in direct contact with the earth, consisting of at least 20 feet of one or more steel reinforcing bars or rods of no less than ½ inch diameter or consisting of at least 20 feet of bare solid copper conductor no smaller than No.4.
- d. A ground ring encircling the building or structure, in direct contact with the earth at a depth below earth surface no less than 2½ feet, consisting of at least 20 feet of bare copper conductor no smaller than No. 2.

5.11.3 Where an electrode specified in Paragraph 5.11.2 is not available or where a supplemental grounding electrode is required, the following method shall be used:

Rod or pipe electrodes shall consist of two 8-foot pipes or rods driven to a depth of at least 8 feet in the ground and spaced 6 feet or more apart. If pipe is used, it shall be galvanized steel and no less than ¾ inch internal diameter. If galvanized steel rods are used, they shall be at least ⅝ inch cross-sectional dimensions, or, if non-ferrous metal, at least ½ inch. The electrode grounding conductor between rods or pipes shall not contain splices. The grounding electric conductor and the connections to the rods or pipes shall be buried.

5.11.4 All grounding electrodes shall be interconnected so as to form a common ground and be connected to the interior metallic cold water piping system at the point where it enters the building.

5.11.5 The grounding conductor may be attached to the water piping system on either side of the water meter. In either case, the water meter shall be suitably bonded with a jumper having sufficient slack to permit the removal of the water meter without disconnecting the jumper. All valves,

unions, etc. between the water meter and the point of attachment of the grounding conductor shall be suitably bonded.

5.11.6 Ground wires must never be connected to hot water lines.

5.12 Temporary Service for Construction

5.12.1 Where Customer desires service for construction purposes, service may be provided on a temporary basis upon payment of a flat fee. The flat fee shall only apply to a transformer and service extension. Such service shall be limited for construction only and shall not exceed a period of one year. See Figure 13 or 14.

All temporary, 125 volt and 250 volt, single phase, receptacle outlets shall have approved ground fault circuit protection.

5.12.2 Where Customer desires service for occupancy use in partially completed structure, service entrance conductors shall be installed on a pressure-treated pole.

5.12.3 Supports for temporary service installations shall be designed and located to provide proper clearance as defined in Section 5.2, Overhead Service Entrance or Section 5.3, Underground Service Entrance.

5.12.4 Supports for temporary service during construction shall be designed and installed as shown in Figure 13 or 14. Installations other than those shown require approval by a recognized inspection agency.

5.12.5 Supports for temporary service shall be located so that upon completion of the permanent structure, the service conductors can be transferred directly to it without the need for splicing and lengthening the wire.

5.13 Service for Manufactured Homes

(Mobile homes, sectional homes, industrialized homes, or recreational vehicles)

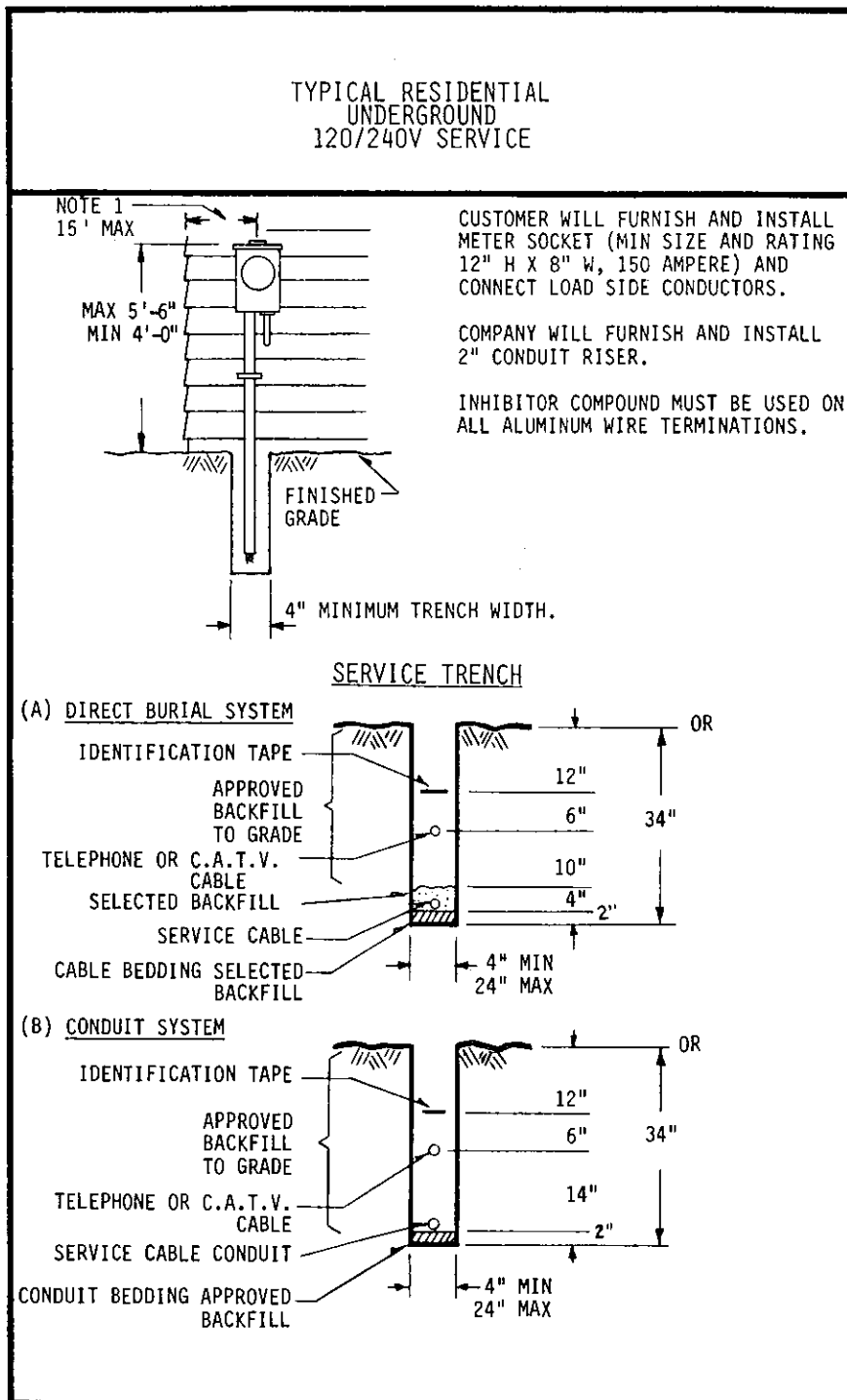
FIGURE 5 (CONT'D)

TYPICAL RESIDENTIAL UNDERGROUND SERVICE (CONT 'D)

NOTES:

1. CUSTOMER MUST CONTACT COMPANY FOR METER LOCATION. CUSTOMER IS RESPONSIBLE FOR ALL TRENCHING AND BACKFILLING.
2. THE TRENCH IS TO BE EXCAVATED IN THE LOCATION INDICATED BY COMPANY. CONTACT THE COMPANY AT LEAST ONE WEEK BEFORE EXCAVATING. DO NOT DIG BEFORE COORDINATING THE JOB WITH THE COMPANY.
3. ALL CUSTOMER WORK MUST BE COMPLETED AND REQUIRED INSPECTIONS BE OBTAINED BEFORE COMPANY WILL CONNECT SERVICE.
4. THE CUSTOMER SHALL COORDINATE THE OCCUPANCY OF THE TRENCH WITH OTHER UTILITIES.
5. SEPARATION BETWEEN ELECTRIC CABLE AND TELEPHONE OR CATV FACILITIES SHALL BE 14" EITHER HORIZONTAL OR VERTICAL AS SHOWN. FOR HORIZONTAL SEPARATION, MINIMUM TRENCH WIDTH IS 18".
6. SEPARATION BETWEEN ELECTRIC CABLE AND WATER OR SEWER LINES SHALL BE A MINIMUM OF 12 INCHES. GAS LINE SEPARATION MUST BE A MINIMUM OF 18 INCHES. MAINTAIN GREATER SEPARATION WHERE PRACTICAL.
7. THE CUSTOMER SHALL INSTALL IDENTIFICATION TAPE PROVIDED BY COMPANY.
8. CUSTOMER MUST HAVE LABOR AT THE SITE TO BACKFILL TRENCH WITH SOIL FREE OF RACK, CINDERS, AND SHARP OBJECTS AFTER COMPANY INSTALLS CABLE. TAMP BACKFILL TO AVOID SETTLING.
9. CONDUIT IS RECOMMENDED TO BE INSTALLED UNDER DRIVEWAYS. WHEN REQUIRED BY COMPANY, CONDUIT WILL BE PROVIDED BY COMPANY.
10. CONDUIT SHALL BE RIGID ELECTRICAL PLASTIC CONDUIT SCHEDULE 40 (SCH 40 EPC PVC) OR TYPE II D.B. PVC. DIAMETER SHALL BE 3", 5", OR 6" AS SPECIFIED BY COMPANY. 6" DIAMETER MUST BE SCH. 40 EPC PVC. CONDUITS MUST HAVE SEALED JOINTS, 1/4" HIGH-STRENGTH SYNTHETIC PULL ROPE END TO END, AND CAPPED ENDS.

FIGURE 5



5.13.1 Definitions

Where not listed below or in Section 2, all definitions shall be the same as in the National Electrical Code Articles 550 and 551.

Mobile Home — a factory assembled, transportable structure built on a permanent chassis and designed to be used as a dwelling unit.

Sectional Home — similar to a mobile home but comprised of two or more units that are joined together on-site (also referred to as a modular or double-wide).

Industrialized Home — a factory assembled structure, comprised of one or more units, without a permanent chassis that is designed to be installed on a permanent foundation.

Permanent Foundation — a concrete footing, installed below frostline, that extends completely around the perimeter of a structure, with block walls to support the structure.

5.13.2 Installation requirements and inspections:

- a. Service equipment for mobile homes shall not be mounted in or on the mobile home and shall be located in sight and no more than 30 feet from the exterior wall of the mobile home it serves.
- b. Service equipment for sectional and industrialized homes may be installed on the home provided all of the following conditions are met:
 - 1) walls and ceiling joists/trusses are at least 2" x 4" construction.
 - 2) home is installed on a permanent foundation.
 - 3) provisions are made for water and sewer service.
 - 4) adequate structural support is provided for service drop.
 - 5) the home is located on property that would normally be sold with the home.
 - 6) all other requirements for clearances, meter locations, etc. can be met.

If all of the above conditions are met, service will be provided either overhead or underground under the same provisions as for permanent dwelling units.

c. Inspection of service equipment, grounds, feeders and service entrance conductors by a recognized inspection agency is required prior to connection. When a mobile or sectional home is moved or relocated, the feeder must be reinspected by a recognized inspection agency prior to connection. Inspection of concealed wiring should be requested at the factory.

5.13.3 If not installed on the home, all service equipment shall be weather-proof and lockable. It must have a minimum capacity of 100 amps. However, for mobile homes with electric heat or for underground service, it must have a minimum capacity of 150 amps. The service equipment must include facilities to connect a permanently installed feeder of 100 amp capacity, as well as space for at least one permanent type circuit for outbuildings, pumps and other facilities. It may also include one or more grounding type receptacles. Meter sockets shall be UL-listed and ringless.

5.13.4 If not installed on the home, service to individually located homes will be supplied by one of the following methods:

a. Overhead Service Drop

Company will install an overhead service drop to Customer's pole on which meter socket and service equipment have been installed. Company will designate the exact location of the pole. See Figure 12.

b. Underground Service Lateral

Company will install an underground service lateral to Customer's pedestal on which meter socket and service equipment have been installed. The pedestal can be job or factory assembled. Use a UL-listed, ringless, 120/240 volt, 150 or 200 amp meter socket for job assembled pedestals. If made of wood, it shall be pressure-treated or have other long-life treatment. Factory assembled pedestals must be rated for 200 amps through the meter socket and provide space for a minimum 100 amp direct-connected mobile home feeder and be Company approved. See Figure 11.

The Customer must dig and backfill the trench according to the Company's service trench specifications. See Figure 5.

FIGURE 4

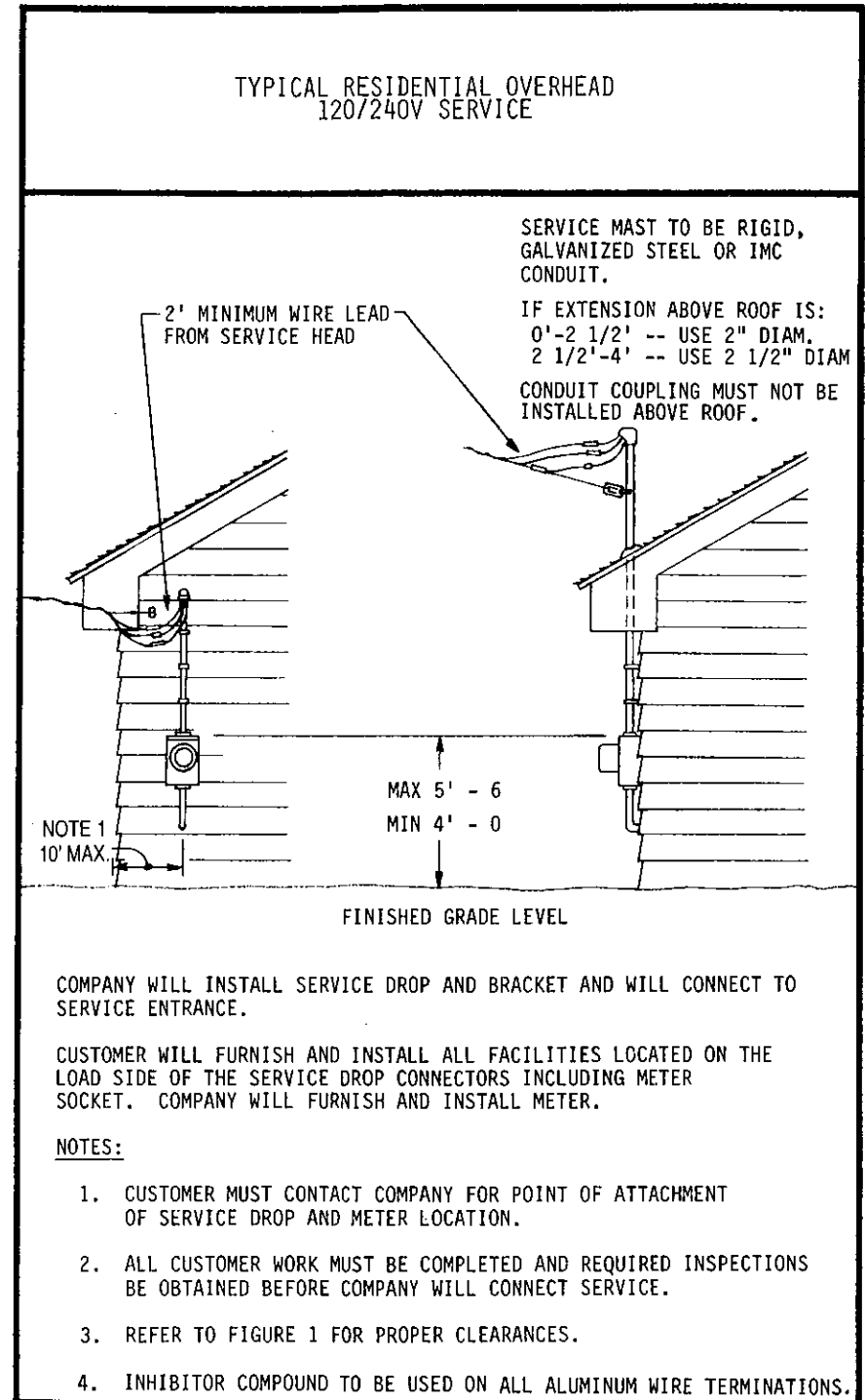
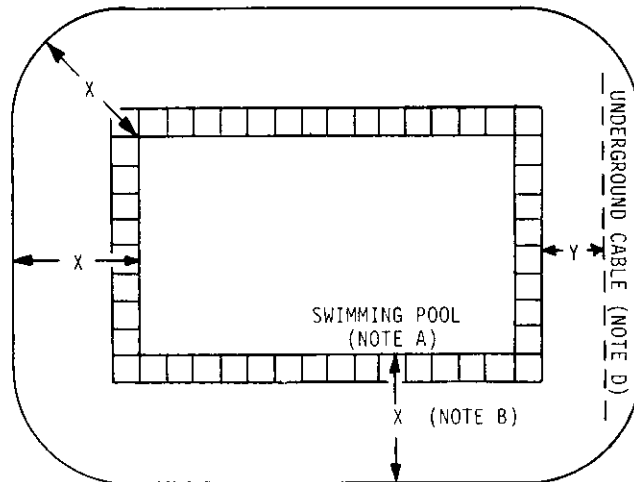


FIGURE 3

HORIZONTAL CLEARANCES WIRE TO SWIMMING POOLS



NOTES:

- A. SWIMMING POOLS ARE DEFINED AS THOSE THAT ARE CONSTRUCTED IN THE GROUND, ON THE GROUND, OR IN A BUILDING SUCH THAT THE POOL CANNOT BE READILY DISASSEMBLED FOR STORAGE.
- B. OVERHEAD CONDUCTORS SHALL NOT PASS OVER POOL OR BORDER AREA (DIMENSION X) AS DEFINED BELOW.

VOLTAGE (PHASE TO GROUND)	DIMENSION X (TO EDGE OF WATER)	
	ABOVE GROUND POOLS	IN GROUND POOLS
1. GUYS AND GROUNDED NEUTRALS	19.5'	17'
2. SERVICES (0 - 600V)	21.5'	19.5'
3. ABOVE 600V	CONTACT COMPANY	CONTACT COMPANY

- C. HORIZONTAL CLEARANCE MAY BE REDUCED TO 10 FEET FOR MULTIPLEX SERVICES (0-600V), GUYS AND GROUNDED NEUTRALS (0-750V), PROVIDED VERTICAL CLEARANCE IS GREATER THAN OR EQUAL TO 20 FEET.
- D. PRIMARY AND SECONDARY UNDERGROUND CABLE SHALL NOT BE INSTALLED WITHIN 10 FEET OF EDGE OF POOL OR ITS AUXILIARY EQUIPMENT (DIMENSION Y).
- E. MINIMUM CLEARANCE IN ANY DIRECTION, EXCEPT AS NOTED IN PART B, TO A DIVING PLATFORM OR TOWER SHALL BE:

1. GUYS AND GROUNDED NEUTRALS	14'
2. SERVICES (0-600V)	15'
3. ABOVE 600V	CONTACT COMPANY.

5.13.5 Mobile home parks with individually metered service for each lot will be supplied when park owner provides wiring facilities as follows:

- a. Mobile home service equipment as required in Section 5.13.3.
- b. Service equipment and meter sockets shall be grouped with a maximum of four meters at one location. Consult Company to determine group meter locations. Each meter of a group shall be identified by a corresponding lot number.

c. Overhead Service

The grouped facilities required in Section 5.13.5b shall be located on a pole provided and installed by the park owner.

d. Underground Service

The grouped facilities required in Section 5.13.5b shall permit the termination of the Company's service lateral through the use of a single set of wire attachments. The grouped metering equipment can be job or factory assembled. Use UL-listed, ringless, 120/240 volt, 150 or 200 amp meter sockets for job assembled metering installations. Factory assembled group metering equipment must be rated for 200 amps through the meter socket and provide space for a minimum 150 amp direct connected mobile home feeder. The park owner must provide all trenching and backfilling according to the Company's specifications. See Figure 11.

5.13.6 Service for recreational vehicle parks and campgrounds shall be supplied through a master meter(s). The use of multiple master meters is at the sole judgement of the Company. Resale of electric energy through park-owned meters is prohibited. Individually metered service may be requested for isolated locations to accommodate recreational vehicles. A minimum 60 amp, 120/240 volt service may be used.

6. SERVICE AT MORE THAN 600 VOLTS

6.1 General

Where service enters Customer's premises at more than 600 volts, the applicable specifications will depend upon the

characteristics of the load, its location, the operating voltage and the type of service available. Before equipment is purchased or construction started, Customer should consult the Company regarding each installation to determine whether Customer-installed facilities are adequate and suitable for the proposed service use. Complete details of Company's specifications will be furnished without cost.

- a. Customer shall, if requested, furnish and maintain a suitable space for any necessary Company equipment, such as transformers and protective devices.
- b. Customer shall provide a safe and suitable location for the necessary meters and metering transformers, and metering pole which will be furnished, installed and maintained by Company.
- c. When prior arrangements are made with Company, metering transformers may be installed in Customer-owned busways, vaults, cubicles or on switchboards.
- d. Customer's service entrance shall meet the requirements of Article 230-Part H of the National Electrical Code. Customer shall provide and install a service disconnecting means in accordance with Article 230-205 of the National Electrical Code.
- e. Disconnecting means must be accessible to Company personnel and provide a visible opening with provisions for pad locking in the open position.

6.2 Overhead Service Entrance

6.2.1 Service will ordinarily be supplied overhead, and the following general rules will apply to installations served in this manner.

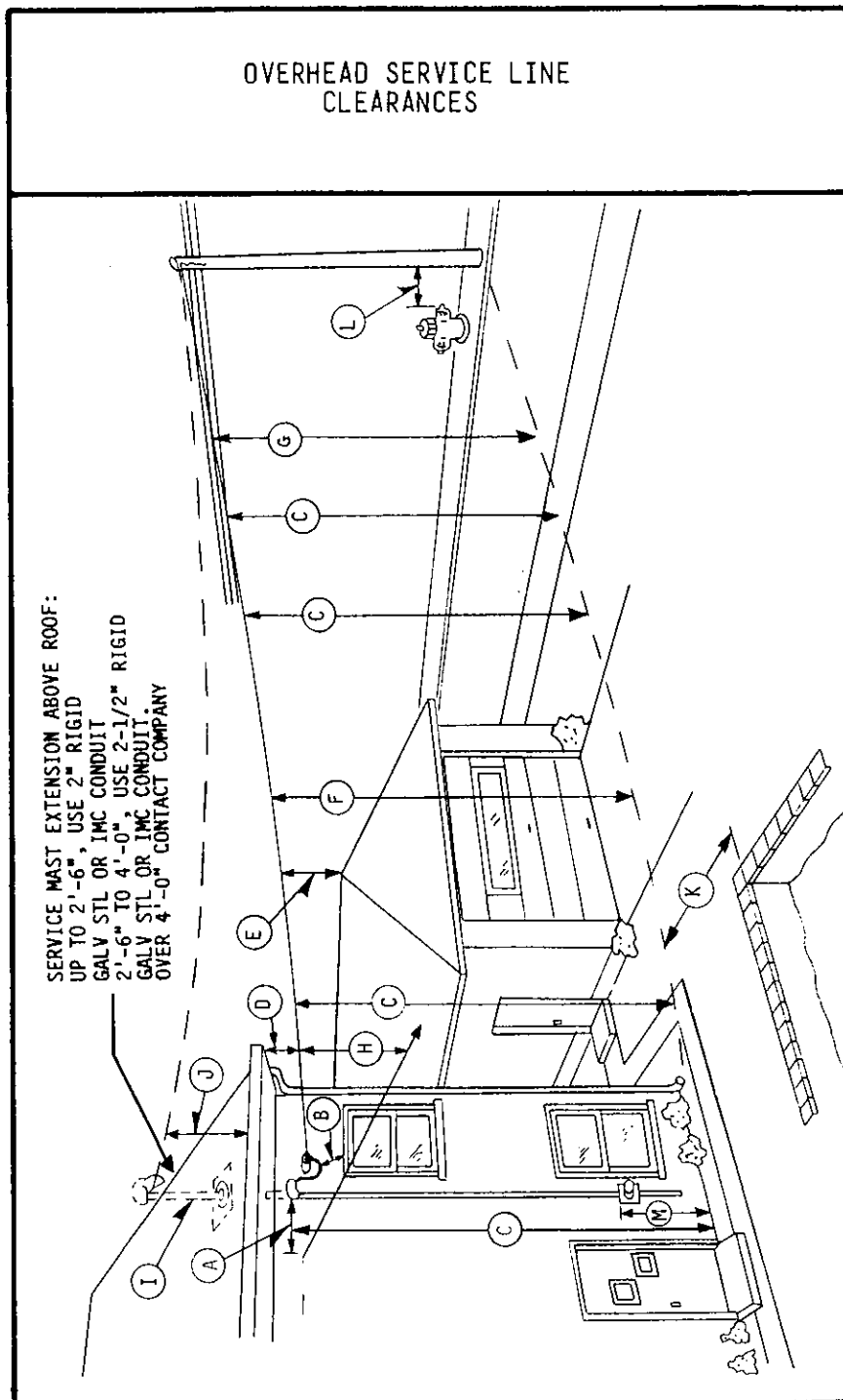
- a. Company will normally furnish and install an overhead service drop from its facilities to the primary metering equipment and will make the necessary connection to Customer's service entrance.
- b. Customer shall furnish, install and maintain all equipment from the point of service, except Company's metering equipment.

FIGURE 2

KEY TO CLEARANCES

- MINIMUM CLEARANCES
- A. TELEPHONE SERVICE AT POINT OF ATTACHMENT - 12 INCHES.
 - B. WINDOWS, DOOR, PORCHES, FIRE ESCAPES AND SIMILAR LOCATIONS - 3 FEET.
EXCEPTION: CONDUCTORS RUN ABOVE THE TOP LEVEL OF A WINDOW AND CONDUCTORS WITH AN OVERALL OUTER JACKET OR PROTECTIVE COVERING.
 - C. SERVICE DROP TO FINISHED GRADE, SIDEWALKS, ETC. - MIN HEIGHT - MULTIPLEX SERVICES TO 300V - 12 FT
OPEN WIRE SERVICES TO 300V - 12.5 FT
ALL SERVICES ABOVE 300V - 15 FT
NOTE: SERVICE HEAD MUST BE ABOVE POINT OF ATTACHMENT. LEAVE MINIMUM OF 2 FT OF CONDUCTOR PAST SERVICE HEAD. MAX HEIGHT - ALL SERVICES - 30 FT
 - D. GUTTERS OR DOWNSPOUTS - 3 INCHES.
 - E. CONDUCTORS ARE NOT PERMITTED TO CROSS ANY PERMANENT STRUCTURE INCLUDING GARAGES AND MOBILE HOMES.
EXCEPTION: SERVICE DROP CONDUCTORS MAY OVERHANG A PORTION OF A BUILDING IN ORDER TO ATTACH TO A SERVICE MAST SERVING THAT BUILDING.
 - F. RESIDENTIAL DRIVEWAY - 16 FT.
 - G. PUBLIC STREET, ALLEY, PUBLIC AND PRIVATE PARKING LOTS AND AREAS SUBJECT TO TRUCK TRAFFIC.
MULTIPLEX SERVICES 0 - 750V - 16 FT
OPEN WIRE SERVICES 0 - 750V - 16.5 FT
 - H. TELEPHONE SERVICE DROP AT CROSSING - 2 FT.
 - I. OPTIONAL METHOD BY USE OF MAST TO OBTAIN CLEARANCES. CONDUIT COUPLING MUST NOT BE INSTALLED ABOVE ROOF.
 - J. SERVICE CONDUCTORS OVERHANGING ROOF TO 300V:
ROOF NOT READILY ACCESSIBLE TO PEDESTRIANS - MULTIPLEX 3.5 FT, OPEN WIRE 10.0 FT.
ROOF READILY ACCESSIBLE TO PEDESTRIANS - MULTIPLEX AND OPEN WIRE 11.0 FT.
NOTE: IF HORIZONTAL DISTANCE FROM MAST TO EDGE OF ROOF IS LESS THAN 4 FT. AND LESS THAN 6 FT. OF CONDUCTOR OVERHANGS, THIS DISTANCE MAY BE REDUCED TO 18 INCHES.
 - K. SWIMMING POOLS - SEE FIGURE 3.
 - L. FIRE HYDRANTS, 3 FT MEASURED BETWEEN THE CLOSEST PARTS OF THE OBJECTS CONCERNED. WHERE CONDITIONS PERMIT, NOT LESS THAN 4 FEET IS RECOMMENDED.
 - M. DISTANCE FROM TOP OF METER TO FINISHED GRADE - 4 FT MIN, 5 FT, SIX INCHES MAX.

FIGURE 1



6.3 Underground Service Entrance

- 6.3.1 Customers desiring underground service shall contact Company to obtain the specifications and other pertinent information relative to this type of service.

7. MOTOR INSTALLATIONS

7.1 General

- 7.1.1 It is Company's obligation to supply satisfactory service to all of its Customers. Any use of equipment by Customer which prohibits Company from carrying out this obligation must be corrected by Customer.
- 7.1.2 Any motor, when started on full rated voltage, will draw more than its full load current which, in turn, causes a drop in voltage on the electrical system serving it. When this voltage drop is excessive, it affects all Customers' equipment served from the same system by producing a very objectionable lamp flicker, and may cause unsatisfactory operation of other equipment. Therefore, it is necessary to limit the motor starting current of any motor by Customer's installation of suitable devices or by the use of certain code rated motors.
- 7.1.3 Because voltage fluctuation varies with the characteristics of the motor in question, with Customer's maximum demand and with the characteristics of Company's electrical system, a limitation for starting currents has been set by taking these factors into consideration.

7.2 Starting Currents

- 7.2.1 The following maximum permissible motor starting currents, based on recommendations of the Association of Edison Illuminating Companies, the Edison Electrical Institute and National Electrical Manufacturers Association, shall apply to the application of motors.

Equipment for Operation at:	Total Locked Rotor Current Not to Exceed:
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Single Phase

120 volts	50 amp
240 volts	
2 hp or less	60 amp
2 hp to 6.5 hp	60 amp plus 20 amp per hp in excess of 2 hp
Over 6.5 hp	Consult Company

Three Phase

240 volts*	
2 hp or less	50 amp
2 hp to 19.9 hp	50 amp plus 14 amp per hp in excess of 2 hp
Over 19.9 hp	Consult Company

**AIR CONDITIONING OR
HEAT PUMP EQUIPMENT**

(Rated in Btu Per Hour)

Equipment for Operation at:	Total Locked Rotor Current Not to Exceed:
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Single Phase

120 volts	50 amp
240 volts	
20,000 Btuh or less	60 amp
20,000 Btuh to 50,000 Btuh	60 amp plus 3 amp per 1,000 Btuh in excess of 20,000 Btuh

Three Phase

240 volts*	
20,000 Btuh or less	50 amp
20,000 Btuh to 50,000 Btuh	50 amp plus 2.5 amp per 1,000 Btuh in excess of 20,000 Btuh
50,000 Btuh to 225,000 Btuh	125 amp plus 1 amp per 1,000 Btuh in excess of 50,000 Btuh

Three Phase

Over 225,000 Btuh	Consult Company
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*Normally three-phase supply is not available for residential service.

TYPICAL INSTALLATION DRAWINGS