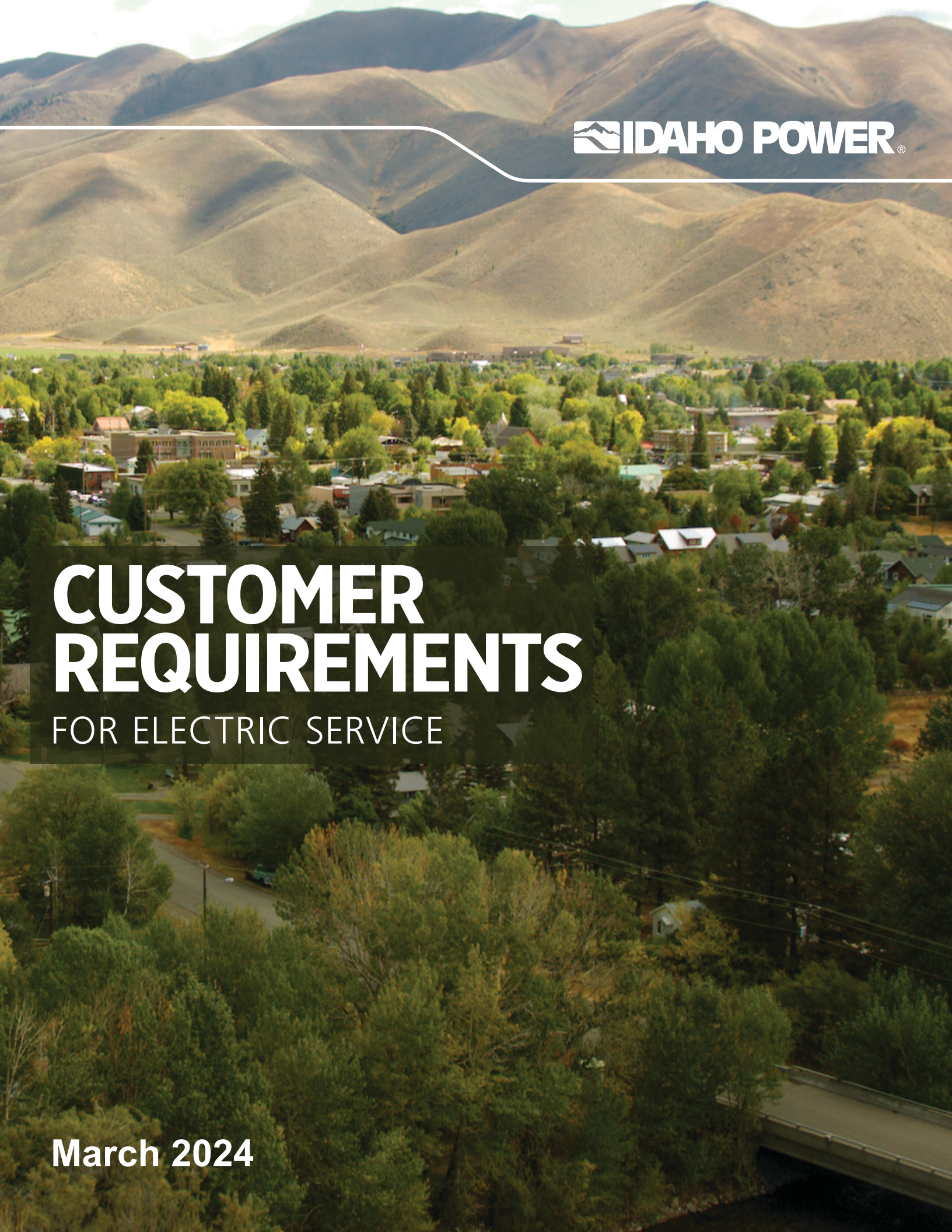


IDAHO POWER®

CUSTOMER REQUIREMENTS

FOR ELECTRIC SERVICE

March 2024

Contents

Definitions

American National Standards Institute (ANSI) is an organization responsible for a variety of industry standards including pole class.

Amp (A) is short for "ampere" and refers to the measurement of current flow. It may also refer to the maximum current a piece of electrical equipment is designed to accommodate, e.g., 200-A meter base.

Amps Interrupting Capacity (AIC) is the maximum number of surge amps that can be served to the equipment and still safely trip off when the amperage gets too high.

Arc Flash refers to the release of energy caused by an electrical arc. Protection from the hazards associated with a possible arc flash are established by Occupational Safety and Health Administration (OSHA) and the National Fire Protection Association (NFPA 70E).

Authority Having Jurisdiction (AHJ) refers to the electrical inspector for the state or city in which the customer's equipment is installed.

Building refers to a structure that stands alone or that is separated from adjoining structures by fire walls.

Conduit refers to a continuous raceway used for installing electrical conductors.

Current Transformer (CT) is an instrument transformer used to measure large customer loads; those that exceed the capacity of self-contained meters.

Current Transformer Enclosure (CT Enclosure) is a cabinet that houses Idaho Power's instrument transformers.

CT Metering Wires are wires installed in one (1) inch conduit by Idaho Power between the CTs and the meter.

Customer refers to a present or prospective user of Idaho Power's service.

Electric Utility Service Equipment Requirements Committee (EUSERC) is the committee that develops standards for meter enclosures and service equipment.

Electrical Metal Tubing (EMT) is thin-wall metal tubing.

Fault Current refers to the amount of electrical current that can be supplied to customer's equipment in the event of a short circuit. Customer equipment must have an available interrupting current (AIC) rating able to withstand this current.

Handholes are small subsurface boxes that contain connections between the customer's service and Idaho Power's facilities. Handholes must be accessible; do not hide, bury, or drive vehicles over handholes; see Figure 1.

Figure 1 Handhole

Horsepower (HP) refers to the size and electrical load of a motor; 1-HP=0.746-kW.

Idaho Power refers to Idaho Power Company or its authorized agent.

Institute of Electrical and Electronics Engineers (IEEE) is an organization that publishes a variety of industry standards for electrical and electronic equipment.

Kilowatt (kW) refers to the size and electrical load of a customer's service; 1-kW=1000-watts.

Kilowatt-Hour (kWH) refers to the electrical consumption of a customer's load. A 1000 watt load operating for one (1) hour uses 1-kWH.

Kilovolt Ampere (kVA) refers to the apparent power of a customer's load and is what Idaho Power uses to size its facilities; kVA=kW/pf.

Meter is a device for measuring the electric energy consumed by a customer.

Meter Room is a room for multiple meters in a multi-occupant building that has been approved by Idaho Power.

Meter Seal is a device installed on a meter base by Idaho Power that, when broken, indicates that the meter base has been opened; see Figure 2.

Figure 2 Meter Seal

National Electric Code (NEC) is the Code that establishes the requirements for customer's wiring that is adopted and/or amended by law and enforced by the AHJ. Electrical wiring for Idaho Power is governed by the NESC.

National Electrical Manufacturers Association (NEMA) is a standards organization that addresses electrical industry concerns and objectives.

National Electric Safety Code (NESC) is the Code that establishes the practical safeguarding of persons during the installation, operation, and maintenance of electric supply and communication facilities.

Non-linear Load refers to an electrical device that draws current in a non-sinusoidal waveform such as:

- Solid-state motor drives
- Variable frequency drives
- Adjustable speed drives
- Electronic motor controllers
- Electronic power supplies
- Electronic phase converters

These loads must meet IEEE 519-1992 guidelines regarding their effect on voltage distortion and notching.

Pedestals are above-ground boxes that contain connections between the customer's service and Idaho Power's facilities. These are different from meter pedestals, as they contain a meter base and not just connectors, see Figure 3.

Figure 3 Pedestal

Phase (Ø) refers to the number of waveforms for an electrical service, either single-phase (1-Ø) or three-phase (3-Ø).

Point of Attachment for overhead services is the point on the customer's building, structure, or pole that supports service wires.

Point of Delivery is the point where Idaho Power's service conductors connect to the customer's wires or equipment. Service point locations are listed below:

- For all overhead services, the service point is located at the drip loop where the customer's conductors are connected to Idaho Power's conductors.
- For self-contained meters on underground services, the service point is located at the line-side lugs in the meter base.
- For CT metered underground services, the service point is in the CT enclosure for Idaho Power-owned services, at the secondary lugs of the transformer, or secondary bus cabinet for customer-owned services.
- For multi-metered or switchgear underground services, the service point is located at the lugs in the incoming section of the service equipment.

The customer owns, installs, operates, and maintains all wiring and equipment beyond the point of delivery. Idaho Power only owns, reads, and maintains the electrical billing meters and any associated instrument transformers beyond the point of delivery, and is not responsible for any electrical issues beyond the point of delivery, including voltage drop and flicker.

Pole Class is an ANSI standard used to establish the strength of a wood pole based on the type of wood and the dimensions of the pole at specific locations. If the pole is not branded, follow the table below:

Class 6 Wood Pole Measurements

Pole Length	Top	6' from Pole Butt
25'	17" (min.)	26" (min.)
30'	17" (min.)	28" (min.)
35'	17" (min.)	30" (min.)

Measurements are circumference for Douglas Fir or Western Red Cedar.
Other species of wood poles will vary. For more information contact Idaho Power.

Unless approved by Idaho Power in advance, a minimum 25 foot, Class 6, round, and treated, wood pole in like-new, climbable condition is required for permanent service.

Pole Size refers to the overall length of the pole and includes the portion buried in the ground.

Post for a meter base fed from underground must be pressure-treated and a minimum of 6"×6".

Power Factor (pf) is a ratio used to measure the inefficiency of an electric load. Idaho Power may need to install larger facilities to serve a customer's load if the power factor is too low.

Premises is a building, structure, dwelling, suite, or residence of the customer that is separated by a demising wall. If the customer uses several buildings, structures, or suites in the operation of a single integrated commercial, industrial, or institutional enterprise, Idaho Power may consider all such buildings, structures, or suites that are in proximity to each other to be the premises, even though intervening ownerships or public throughfares exist.

Rigid Conduit is required by Idaho Power for certain applications and includes the following types:

- Intermediate Metal Conduit (IMC) is lighter weight than RMC and GRC, but still acceptable for applications that require rigid conduit.
- Rigid Metal Conduit (RMC) and Galvanized Rigid Conduit (GRC) are heavy-wall metallic conduit.
- Schedule 80 PVC is heavy weight, non-metallic conduit and is acceptable below ground and for applications that require rigid conduit.

Sealable is capable of having an Idaho Power meter seal installed to prevent unauthorized access.

Schedule 40 PVC is a non-metallic conduit for use below ground that is acceptable to Idaho Power.

Self-contained Meter refers to a meter that measures a customer's load without using CTs.

Service has two definitions:

1. The supply of electricity from Idaho Power to the customer.
2. The conductors (wires or cables) that connect Idaho Power's facilities to customer's equipment.

Service Disconnect is a customer-owned circuit breaker or fused switch that is intended to disconnect the customer's electrical system from Idaho Power.

Single-phase (1-Ø) Service refers to an overhead or underground three-wire service used to serve 1-Ø loads, typically for residential or small commercial, and some irrigation, customers.

Speculative Building is a request by a developer for a commercial and/or industrial building designed and constructed with a long-term objective to allow for dynamic occupancy of various tenants' electrical requirements.

Structure refers to something, such as a building, that is constructed.

Tariff refers to the requirements, limitations, and rates for a customer's service. Tariffs are governed by the Public Utilities Commission and can be found on Idaho Power's website.

Three-phase (3-Ø) Service refers to an overhead or underground four-wire service used to serve 3-Ø loads; typically for commercial, which is most irrigation and industrial customers.

Transformers are electrical devices that convert Idaho Power's high voltage facilities to the desired voltage needed for the customer's service, see Figures 4-7.

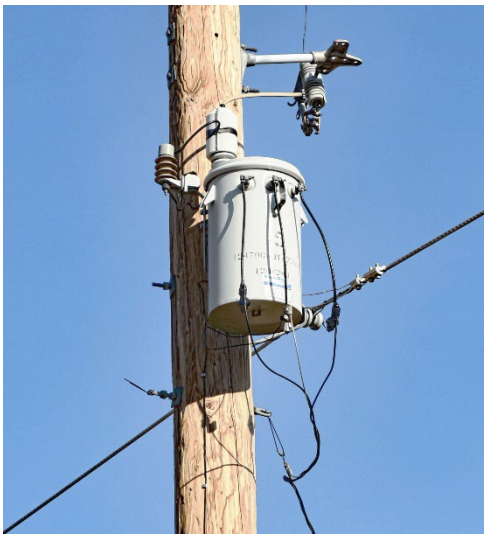


Figure 4 Single-phase Overhead

Figure 5 Three-phase Overhead Transformers

Figure 6 Single-phase and Three-phase Padmounted Transformers

Transformers continued:

Figure 7 Other Padmounted Equipment
-Not a transformer

NOTE–Do not mistake other Idaho Power padmounted equipment for a transformer, see Figures 6 and 7. Only transformers have service voltages on them, contact Idaho Power for clarification.

Volt (V) is the measurement of electrical potential and corresponds to the customer's service voltage, e.g., 120/240-V.

Voltage Drop is a reduction in supply voltage due to resistive heating losses in conductors.

Weatherhead refers to the weatherproof service drop entry point where overhead supply conductors enter the service conduit.

General Information

Pre-Construction

Before beginning work on a new service or modifying an existing service, contact Idaho Power's Customer Care Team at **208-388-2323** or **1-800-488-6151** if outside the Treasure Valley.

Exception: For new residential services only; if the installation meets the design limitations described in the Underground Residential Conduit Installation Requirements document and the customer is installing the trench and conduit, Idaho Power does not need to be notified until the service is ready for the conductors and permanent meter to be installed.

It is important to follow the requirements in the most current version of this document. If this is a printed copy, check the Idaho Power website at the address below for a new version with the most current requirements:

www.idahopower.com/accounts-service/construction-remodeling/installing-new-service/

Connection Requirements

Services must meet Idaho Power's requirements before they can be connected. Some projects require approval from Idaho Power before service can be connected; for example, single-phase motors larger than 7 1/2-HP, phase converters, large loads, etc. For residential services, any equipment such as electric space or water heaters, electric vehicle chargers, welders, etc. with an individual and instantaneous load exceeding 6-kW must be approved by Idaho Power in advance and may require upgrades to Idaho Power's distribution system at the customer's expense.

All installations must meet the requirements of the *National Electrical Code* (NEC) with modifications as adopted by the Authority Having Jurisdiction (AHJ) at the service address and display the proper electrical permit. To avoid a return trip charge and a delay in service, make sure the installation has passed the required electrical inspections before requesting permanent service.

ATTENTION! Idaho Power cannot energize a new service or re-energize a disconnected service until it has passed an electrical inspection.

Dig-Line. At least 2-10 days before digging, call **811** or go to 811 In Your State to request that buried utility lines be marked.

DIGLINE, Inc. provides a one-call solution to notify all public utility companies of pending excavations, allowing them to mark their lines.

Required Permits

Contact state and local governments about required permits which must be obtained before electrical service is connected. Some permits or documentation that might be required are:

- City or state electrical permit(s).
- Additional documents and paperwork depending on scope and location of the project, canal or highway permits, easements, etc.

Service Voltages

Single-phase (1-Ø): 120/240-volt
240/480-volt*
120/208-volt*

Three-phase (3-Ø): 120/208-volt
277/480-volt
120/240-volt**
240/480-volt**

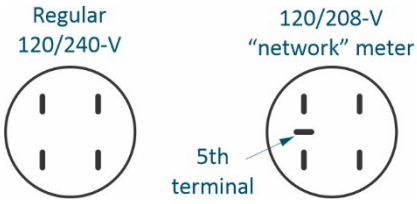


Figure 8 Single-phase Self-contained Meter Terminal Arrangements

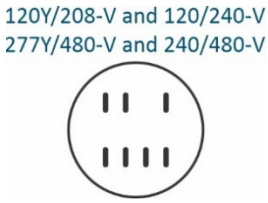


Figure 9 Three-phase Self-contained Meter Terminal Arrangement

*Single-phase, 240/480-volt services are available for limited applications and must be approved in advance by Idaho Power. Single-phase, 120/208-volt services require a "network" meter with a 5th lug and are only available as part of a 3-phase, multi-occupant service.

**Three-phase, 120/240-volt and 240/480-volt services are for maintenance only and are not available for new construction, except for some specific applications that must be approved in advance by Idaho Power.

Site Preparation

To avoid a return trip charge and unnecessary delays with a service installation, prepare the site before the arrival of Idaho Power's team. Site preparation includes, but is not limited to the following:

- Install the meter pole or mark the location on the building foundation.
- Provide clear access to the site.
- Identify all property lines with property pins and written documentation.
- Establish the final grade of the site.
- Obtain all required permits and inspections.

Route to the Proper Equipment

Underground services should go to a transformer, handhole, or pedestal; see Figures 6 and 7. For service to an overhead transformer, contact Idaho Power for clarification.

Clearances

Overhead Power Lines

All people and all tools or equipment being used must stay at least 10 feet from any overhead distribution power line, and further from transmission power lines, see Idaho Code § 55-2401 Idaho Overhead Line Safety Act.

Buildings, antennas, signs, pools, and other objects require additional horizontal and vertical clearances from overhead power lines. Refer to the document linked below and consult with Idaho Power **prior** to starting construction near overhead lines.

https://docs.idahopower.com/pdfs/ServiceBilling/Construction/BuildingNear%20OverheadLines.pdf

Overhead service conductors must be at least 36 inches from windows that are designed to be opened, doors, porches, balconies, ladders, stairs, fire escapes or similar locations.

Separation Between Electric and Gas

The following requirements are for the separation between electric and gas equipment. Note that electrical conduit is not considered electrical equipment.

Non-residential installations. All electric devices, including meters and pad-mounted transformers, must be separated from a gas meter by at least 36 inches horizontally.

Residential installations. All electric devices, including meters and pad-mounted transformers, must be separated from a gas meter by at least 36 inches in any direction. An electric meter also requires 18 inches horizontal separation from the gas meter; see Figure 10.

NOTE–The gas company may require more space.

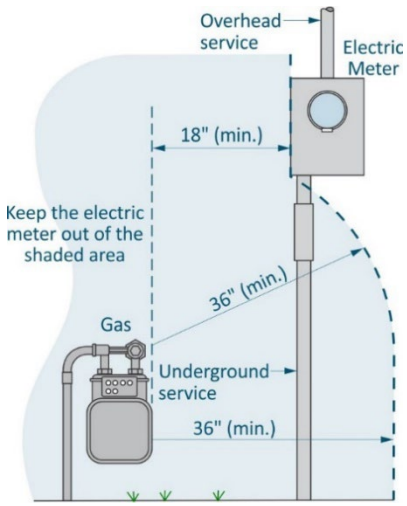


Figure 10 Separation Between Electric and Gas (Residential Only)

Propane Tanks

Electrical equipment requires 10 feet clearance from storage tanks and 20 feet from dispensers; this applies to all flammables. Electrical equipment includes air conditioners, transformers, meters, etc.

Keep the service conductors and conduit at least three (3) feet from the tank.

Pad-mounted Equipment

Pad-mounted equipment requires a clear and level workspace. Keep shrubs, stored material, fences, and other materials out of the measured space detailed below, also see Figure 11.

- 10 feet from each access door or hood; some equipment has more than one door
- Three (3) feet from each side and back of the equipment
- 10 feet above transformers 1000 kVA and smaller
- 20 feet above transformers larger than 1000 kVA

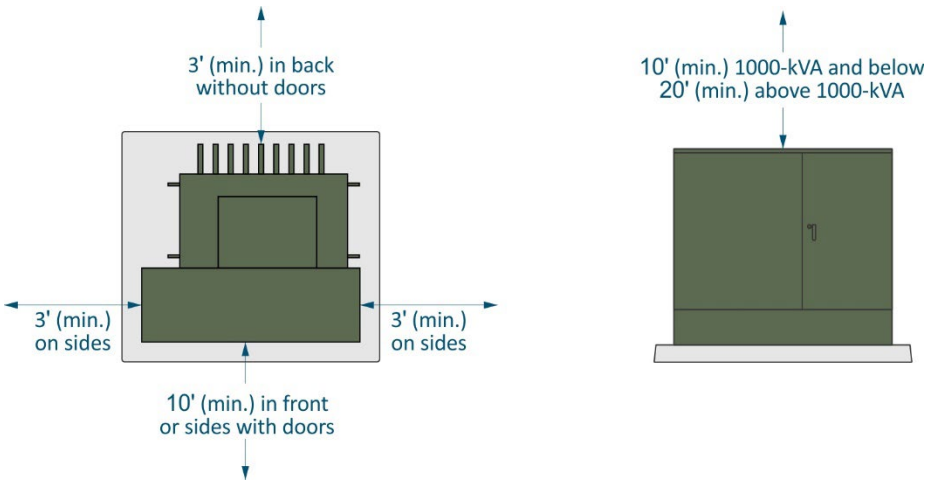


Figure 11 Working Clearance around Padmounted Transformer

Buildings have additional requirements. **Buildings are required to be 10 feet from padmounted transformers**. This clearance may be reduced to three (3) feet from a non-combustible wall. However, 10 feet of clearance is still required in all directions from doors, operable windows, or air intake vents on a non-combustible wall, and paths of egress, see Figure 12.

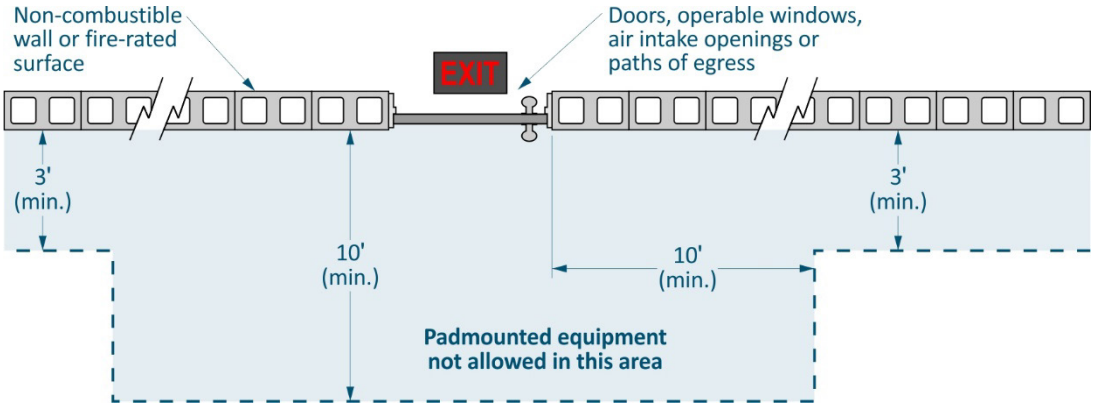


Figure 12 Clearance from a Non-Combustible Wall

To be considered noncombustible **one** of the following requirements must be met:

1. A one-hour or greater fire rating as certified by a licensed architect, engineer, or other AHJ.
2. Have an automatic fire suppression system, i.e., fire sprinkler system.
3. A surface material that will not ignite, burn, support combustion, or release flammable vapors when subject to fire or heat according to ASTM E136. There must be 5/8 inch gypsum board on the inside of the surface with fire/smoke detectors, and the surface material must be installed with one of the following underneath:
   - Minimum of 5/8-inch gypsum board
   - Cement board
   - Fire-rated OSB

ATTENTION! All building surfaces within 10-feet of the transformer must be noncombustible.

Fire-Resistant Barriers

When the required clearance described previously cannot be achieved, construct a fire-resistance barrier made of non-combustible materials that meets all applicable building codes and Idaho Power's requirements.

An acceptable fire-resistant barrier is a free-standing wall such as brick, CMU block, or concrete that is located between the padmounted equipment and the combustible wall or opening, see Figure 13.

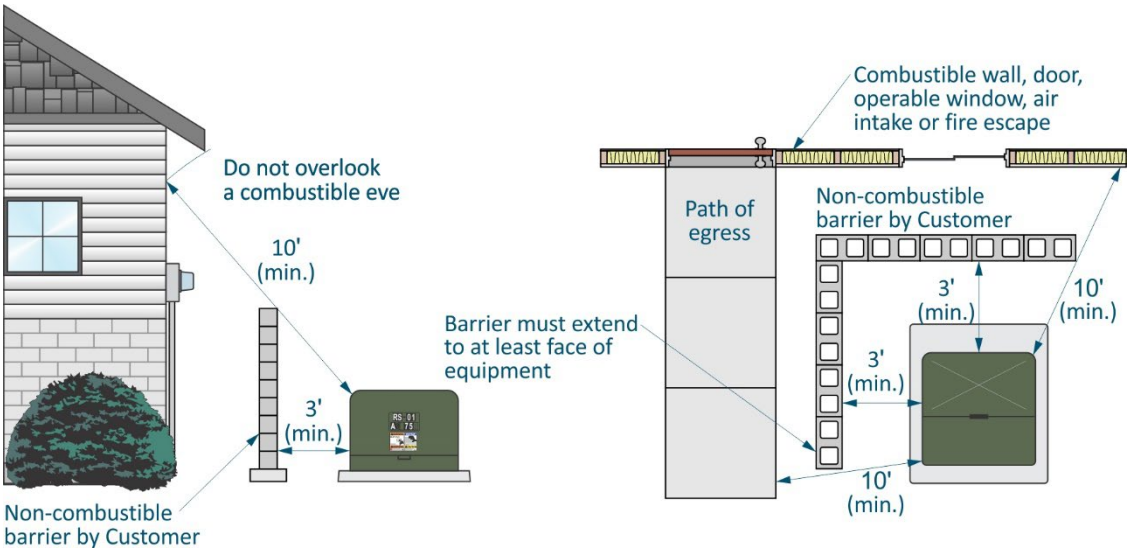


Figure 13 Fire-Resistant Barrier

NOTE–The 10 foot clearance is measured "line-of-sight" between the nearest point on the equipment and the wall, opening and/or path of egress.

Equipment Screening

Screening of pad-mounted equipment is discouraged because it can lead to increased restoration times during an outage. If screening is used, it may be constructed of any material unless it is surrounding oil-filled equipment that is located within 10 feet of a building. In this case, the screening is considered a fire-resistant barrier and must meet the requirements above. The use of landscaping to screen equipment is acceptable and is the only option available in heavy snow areas where snow removal equipment can damage manufactured or constructed screen walls. Other means of concealing pad-mounted equipment such as vinyl wraps, custom paint, or covers are not allowed.

All equipment screening must be approved by Idaho Power prior to installation and shall not obstruct access to the equipment, impede airflow required for cooling, or infringe on the required clearances for the equipment. Contact Idaho Power for specific requirements. Provide a permanent sign on manufactured screen wall doors stating "IDAHO POWER EQUIPMENT LOCATED BEHIND DOORS" in one (1) inch high lettering (refer to page 28 for additional requirements).

Idaho Power will not furnish, install, own, or maintain any screening materials. In order to access equipment or restore power, screening materials that are in violation of these requirements or that otherwise impede access to equipment may be removed. Idaho Power is not responsible for replacing screening materials found to be in violation of these requirements that were necessary to remove to gain access to its equipment.

Changing an Existing Electrical Service

An existing electrical service may be changed, modified, or relocated to meet the customer's electrical needs. It might be necessary to disconnect the power to do this work. Some reasons for changing an existing electrical service may include:

- Additional power is needed, and the existing panel is not adequate for new loads. For example, the main breaker may be too small, or there is no room for additional circuits.
- There appears to be power quality problems due to additional or unusual customer loads and Idaho Power's service wires, cables, or equipment might be inadequate.
- Replacing an old or damaged panel or meter base.
- Relocating the service meter to another location.
- Converting from an overhead service to an underground service.
- Constructing a new structure or modifying an existing structure, so the service wires or cables need to be relocated.
- Adding Customer Generation, such as solar panels, to the service. Usually, the installer of these systems will determine if the existing electrical panel is adequate.

ATTENTION! Making changes to an existing service will require the service to comply with Idaho Power's current requirements as stated in this document and any other related documents.

Idaho Power will disconnect the existing service and then reconnect it after the work is completed at no cost provided the following terms are met:

1. Idaho Power receives at least **24-hours' notice** for the disconnect and the reconnect.
2. Both the disconnect and the reconnect are done during normal working hours, i.e., weekdays between 8:00 am and 5:00 pm.
3. The service is ready to be disconnected when Idaho Power arrives.
4. The service is ready to be reconnected with a **passed electrical inspection** by the AHJ when Idaho Power arrives.

There might be a charge for this service if it is required outside normal business hours, or if Idaho Power is required to make an extra trip because the service is not ready or does not comply with Idaho Power's requirements.

Construction and engineering fees may apply to any additional work or materials supplied by Idaho Power to meet the needs of the new service. Construction credit allowances may not be available when load is added to an existing service. An Idaho Power representative will review the new service requirements to determine if its existing facilities are adequate for the changes to the existing service and provide costs for any work required by Idaho Power.

Power Production and Energy Storage

Any on-site customer-owned device or equipment that can produce or store electrical energy is subject to additional requirements. This includes but is not limited to generators (prime movers that convert mechanical energy to electrical energy), solar or wind production, and battery storage systems.

Generators, battery storage and other systems that provide back-up emergency or stand-by power only during an electrical outage must utilize a "break-before-make" transfer switch that meets the requirements of NEC Articles 700, 701 or 702. These systems may not interconnect with Idaho Power's distribution system.

Solar, wind, battery and other systems that are used to offset a customer's electrical consumption, send electrical energy back to Idaho Power, or interconnect with Idaho Power's distribution system in any way must meet the requirements in NEC Article 705 and Tariff Schedule 68. All interconnected power production systems require an interconnection agreement with Idaho Power. Refer to the Idaho Power website for the installation requirements for a customer generation or battery storage system.

www.idahopower.com/energy-environment/green-choices/solar-power-options-customer-generation/

Portable Generators

Do not connect a portable generator to a building's electrical wiring unless a listed transfer switch has been installed. The transfer switch prevents the generator from feeding back into the Idaho Power electrical system, exposing workers to unforeseeable hazards. The generator can be damaged if the electrical system becomes energized while the generator is operating. Transfer devices installed in the meter base are not allowed.

Available Fault Current

The NEC requires that service entry equipment must be rated for the maximum available fault current from all sources, including any customer generation.

Residential Services

For typical single-family residential services with a self-contained meter and served from a 100-kVA transformer or smaller, the available fault current contribution from Idaho Power will require service equipment ratings as shown:

Fault Current Ratings for Residential Services by Length

	Overhead Services		Underground Services from Transformer		Underground Services from Handhole/Pedestal	
Service	**10k AIC**	**22k AIC**	**10k AIC**	**22k AIC**	**10k AIC**	**22k AIC**
200-A	≥ 30-ft	< 30-ft	≥ 40-ft	< 40-ft	≥ 20-ft	< 20-ft
400-A	≥ 50-ft	< 50-ft	≥ 80-ft	< 80-ft	≥ 40-ft	< 40-ft

Contact Idaho Power to obtain more precise fault current contributions for larger transformers or for any other type of residential service. Please have a service length and demand load available.

Commercial, Industrial and Irrigation Services

Contact Idaho Power for the maximum available fault current.

Who Provides the Materials?

Most materials are provided by the customer. Idaho Power will provide the meter and service conductors from its facilities to the point of delivery and may provide other material for some installations. For installation types and additional information, see the following service diagrams:

- Figures 38-44 for Overhead Services
- Figure 50-59 for Underground Services

Materials provided by Idaho Power may be charged to the customer as part of the cost of the service. Consult with Idaho Power for specific prices. For residential, single-phase services up to 400-amps, customers can refer to the Idaho or Oregon cost information sheets.

Connectors

Generally, the owner of the enclosure or equipment will provide the electrical connectors (lugs or terminals) within that piece of equipment necessary to connect the electrical conductors, regardless of who owns the conductors. The number, size, and type of conductors must be known so that the proper connectors can be provided.

> **NOTE**–Idaho Power will not terminate service conductors in a customer breaker. The connection point must be on terminals that extend away from the main disconnect.

When Will Construction Begin?

Idaho Power will schedule installation when all necessary payments, signatures, documents, and permits have been received by the company. Idaho Power will strive to meet the requested in-service date; however, construction may be affected by the availability of materials, manpower, weather, site preparation or change orders. The installation may be done by Idaho Power or one of its contractors.

Metering

This section provides details for self-contained, residential, and commercial meter bases that are acceptable for use in Idaho Power's service territory. Idaho Power does not have a list of specifically approved meter bases; however, meter bases that meet the requirements of EUSERC are recommended. All meter bases are subject to approval by Idaho Power prior to being energized.

Requirements

All meter bases must meet the requirements below unless otherwise approved in advance by the Idaho Power Metering Department:

- Listed and labeled by Underwriter's Laboratory (UL), or other Nationally Recognized Testing Laboratory (NRTL).
- Enclosures must be rated for exterior use, per National Electrical Manufacturers Association (NEMA) Type 3R, unless they are part of a multi-meter installation installed in an Idaho Power approved meter room.
- Rated for the maximum available fault current.
- Accept a meter seal.
- Customer-owned energy management, load monitoring, and overcurrent protection equipment is not allowed inside of a meter base enclosure.
- Recessed meter bases are not allowed.

Meter Base Types

Meter bases must be sealable—either ring or ringless type. Idaho Power will install a meter seal on the ring or on the clip at the base of the enclosure.

Figure 14 Ring Type

Figure 15 Ringless Type

Bypass Meter Bases

A meter base bypass is used to keep the service energized while maintenance is being performed on the meter. It provides safety for workers and allows them to replace the meter without an interruption of service.

Horn Bypass

Horn bypass is only available with ringless style, single-phase metering equipment. Jumper cables may be installed once the outer ringless cover is removed from the meter socket to bypass the meter. Short bus connectors extend upward from the line side and downward from the load side meter socket jaws giving the appearance of "horns."

Horn bypass meter sockets are not allowed.

Figure 16 Horn Bypass

Lever Bypass

Lever bypass is available with ringless-style metering equipment. A swing arm or "lever" extends from the right side of the meter socket. Once the meter socket cover is removed, the lever may be manually rotated upward to engage bypass jaws allowing current to flow through the meter socket with the meter in or out of the meter socket. Another feature this lever provides is a jaw release function. By rotating the lever up as far as possible the spring-loaded meter socket jaws are spread open for ease of meter installation or removal.
The lever is usually red.

Lever bypass meter sockets are not allowed.

Figure 17 Lever Bypass

Locking Jaw

A locking jaw meter base is used to lock the blades of the meter into position in the socket and ensures that the meter does not come loose. A lever is incorporated into the meter base and used to lock and unlock the socket. While the lever looks like a bypass lever, they serve different purposes. These levers are often green.

Locking-jaw non-bypass meter bases are not required but are allowed for applications that do not require a "Safety Socket Test Bypass" meter base.

Figure 18 Locking Jaw

Test Bypass

Test bypass with safety socket, also referred to as "link-bypass" is available for ring style single- or three-phase metering equipment. This temporary bypass feature allows Idaho Power to perform meter maintenance without removing the meter or interrupting service to the customer.

While the equipment remains energized, the "test block" cover is removed, and a technician installs a set of jumpers on a threaded stud with a keeper nut from the line-side bussing to the load-side bussing on each phase. With the manual bypass link jumper installed, the meter can be removed from the socket without disrupting service.

Safety socket test bypass meter bases are required for 480-volt services. They are approved for use on 208-volt and 240-volt commercial or irrigation services up to 200-amps, but they are not required. Test bypass bases must have ring protector.

Test bypass meter bases are not allowed for residential services or for services greater than 200-amps.

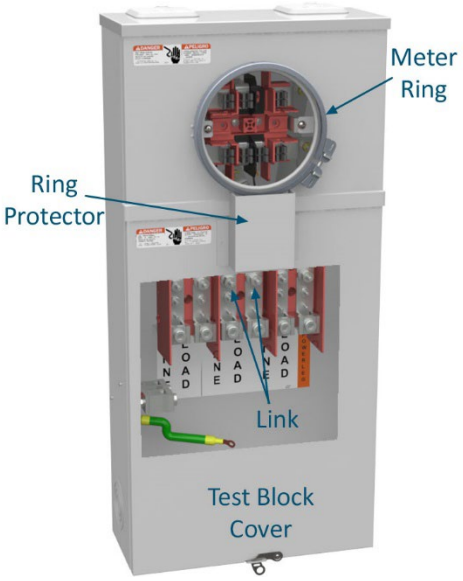


Figure 19 Test Bypass with Safety Socket

Approved Meter Bases

The following table summarizes the types of bases that are approved for use by Idaho Power:

Approved Meter Base Types

Base Rating (continuous)	Horn	Lever	Locking Jaw	Test Bypass
Residential				
120/240-V, 1-Ø				
100-A	NO	NO	OK	NO
200-A	NO	NO	OK	NO
320-A	NO	NO	OK	NO
120Y/208-V, 1-Ø (network)				
100-A	NO	NO	OK	NO
200-A	NO	NO	OK	NO
Commercial/Irrigation				
120/240-V, 1-Ø				
200-A	NO	NO	OK	OK
320-A	NO	NO	OK	NO
240/480-V, 1-Ø (by permission only)				
200-A	NO	NO	NO	REQUIRED
320-A	NO	NO	OK	NO
120Y/208-V, 3-Ø				
200-A	NO	NO	OK	OK
120/240-V, 3-Ø (by permission only)				
200-A	NO	NO	OK	OK
277Y/480-V, 3-Ø				
200-A	NO	NO	NO	REQUIRED
240/480-V, 3-Ø (by permission only)				
200-A	NO	NO	NO	REQUIRED

Ring-type or ringless-type are acceptable except for test block bypass meter bases which must be ring-type.

Additional meter base requirements for each voltage class are listed in the sub-sections below.

120/240-Volt and 240/480-Volt, 1-Ø Meter Bases

EUSERC-approved bases are recommended. Refer to EUSERC Drawings 301, 301A, 302 and 302A. Other bases may be accepted if they have adequate wiring space between the load terminals and underground conduit entry and meet the following minimum dimensions:

1-Ø Meter Base Minimum Dimensions

Service	Number of Terminals	Exterior Dimensions* Height	Width	Depth	Wiring Space	Lug Range	Conduit Entry
100-A	4	11”	8”	4”	4”	#6 – 1/0	2”
200-A	4	15”	11”	4”	4”	#2 – 4/0	2”
400-A	4	22”	11”	5”	6”	#1/0 – 350	3”

*Dimensions shown are rounded to the nearest inch.

No bypass of any kind is allowed on residential meter bases or on a 400-amp meter base. Meter bases greater than 200-amps must seal with one meter seal. Some ring type bases will require a cover interlock device before they are approved for installation. Check with the manufacturer before purchase.

120Y/208-Volt, 1-Ø Meter Bases

Network meter bases are only allowed as part of a 3-phase service when installed in multi-meter equipment.

120Y/208-Volt and 120/240-Volt, 3-Ø Meter Bases

EUSERC-approved with or without "Safety Socket Test Block Bypass" meter bases are accepted on all self-contained 208-volt services up to 200-amps. They must seal with only one meter seal; see EUSERC Drawings 304, 305 and 305A.

3-Ø, 240-V Meter Base Minimum Dimensions

Service	Number of Terminals	Exterior Dimensions* Height	Width	Depth	Wiring Space	Lug Range	Conduit Entry
100-A	7	19"	10"	5"	6"	#6–1/0	2"
200-A	7	19"	13"	5"	6"	#1/0–350	3"

*Dimensions shown are rounded to the nearest inch.

277Y/480-Volt and 240/480-Volt, 3-Ø Meter Bases

EUSERC-approved with "Safety Socket Test Block Bypass" meter bases are required on all newly installed 480-volt services up to 200-amps. They must seal with only one meter seal. Refer to EUSERC Drawings 304, 305 and 305A.

3-Ø, 480-V Test Block Bypass Meter Base Minimum Dimensions

Service	Number of Terminals	Exterior Dimensions* Height	Width	Depth	Wiring Space	Lug Range	Conduit Entry
100-A	7	25"	12"	5"	6"	#6–1/0	2"
200-A	7	30"	14"	6"	6"	#1/0–350	3"

*Dimensions shown are rounded to the nearest inch.

Current Transformer Rated Meter Bases

Current Transformer (CT) rated meters are required for single-phase services greater than 400-amps and three-phase services greater than 200-amps. Bases for these meters are provided by Idaho Power.

> NOTE–There is an additional charge for CT metering when the customer's main breaker or panel size is less than 400-amps single-phase, or 200-amps three-phase.

Motor Limits on Self-contained Meter Bases

All single-phase motors larger than 7-1/2-HP require advance approval from Idaho Power. Once approved, the maximum horsepower allowed on a self-contained meter base is shown below.

Motor Limits on Self-contained Meter Bases

	Service Voltage 240/120-V	208Y/120-V	480/240-V	480Y/277-V
1-phase	30-HP*	N/A	40-HP	N/A
3-phase	50-HP	50-HP	125-HP	125-HP

*For 320-A, 1-phase meter bases only. The limit on 200-A, 1-phase meter bases is 25-HP.

Recessed Meter Bases

Recessed meter bases are not allowed.

Meter Base Wiring

Customer wiring for a self-contained meter base is required to be connected to the "load-side" (bottom) terminals, and Idaho Power's wiring will be on the "line-side" (top) terminals.

Other Metering Equipment

The other types of metering equipment listed below must meet the same socket requirements described above. EUSERC approved equipment is recommended.

Meter-Main Equipment

Combination meter-main equipment is allowed, but not required. This equipment must have the meter base and main disconnect, including any distribution branch circuit breakers, in separate sections. The meter section must be independently sealable from the main/distribution section.

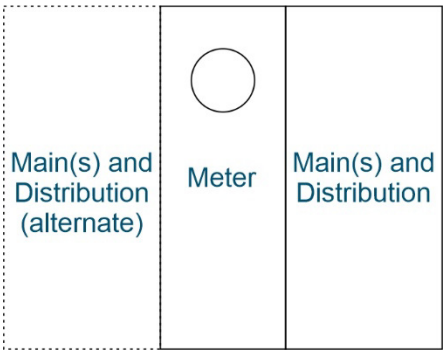


Figure 20 Meter-Main Equipment

The main(s) and distribution section must be located to the side of the metering section, as shown in Figure 20. Stacked meter-main equipment that requires Idaho Power service conductors to pass through the main(s) and distribution section of the equipment is not allowed. Refer to EUSERC Drawings 301, 301A or 301B for more information.

> **NOTE**–Article 230.85 was added in the 2020 Edition of the National Electric Code requiring exterior disconnects on 1- and 2-family dwelling units; however, neither Idaho nor Oregon have adopted this requirement at the time of this publication.

Meter Pedestals

Meter pedestals must conform with EUSERC Drawing 307.

Multi Meter Equipment

Self-contained meter sockets within the equipment must comply with the requirements above.

CT metering is also required to comply with EUSERC Drawing 328A, 328B, 329A or 329B for single-phase services larger than 400A and three-phase services larger than 200A.

CT-Metered Services up to 800-Amps

CT Enclosures

CT enclosures are used for Idaho Power-owned services below 600-volts and up to 800-amps that cannot be served using a self-contained meter. Enclosures require a hinged cover and must be "sealable" with a meter seal. A CT mounting rack is required to be installed inside the enclosure that conforms with EUSERC Drawings 328A, 328B, 329A or 329B and related requirements.

Idaho Power will furnish and install the CT bus link and CTs on the mounting rack and terminate on the top of the bus link. Customer wiring must terminate on the bottom of the bus link.

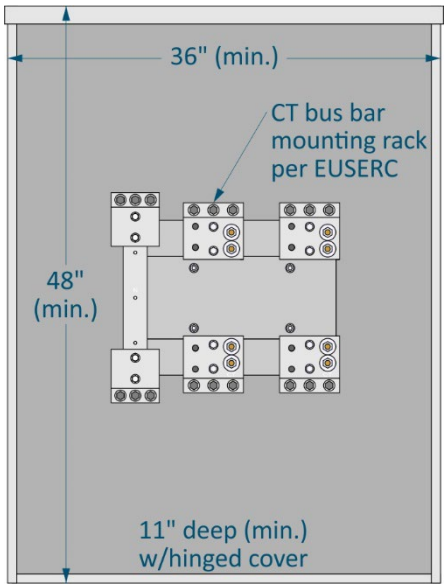


Figure 21 Single-phase CT Enclosure (401-800A)

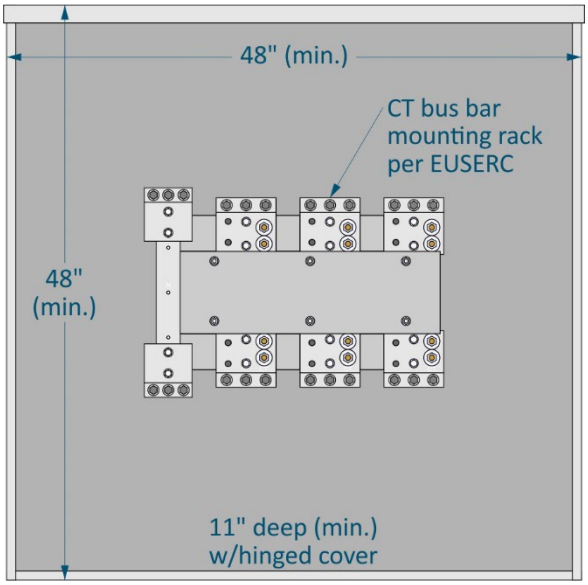


Figure 22 Three-phase CT Enclosure (201-800A)

CT-Metered Services over 800-Amps

The preferred installation for services over 800-amps is customer-owned with the CTs located at the transformer for underground services, see Figure 53; or at the weatherhead for overhead services, see Figure 42.

Switchgear-mounted metering must be approved by Idaho Power in advance of installation. Bussing must accommodate CTs with a 4-½-inch×3-½-inch window size and conform to the EUSERC Standard Drawing numbers; see Figure 23 and the table below.

NOTE–CT bus links are provided and installed by the customer and must torqued to the manufacturer's specified value.

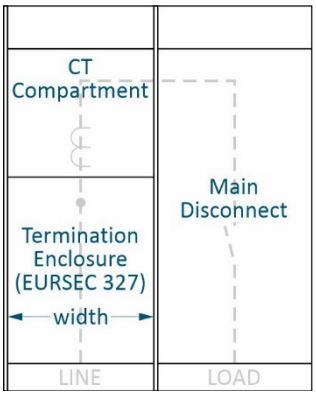


Figure 23 Switchgear-mounted CTs

EUSERC Drawings for Switchgear-mounted CTs 0-600V*

Service Size	Service Section	CT Compartment 1-Ø, 3-wire	CT Compartment 3-Ø, 4-wire	Drawing 327 Termination Width
801-1000-A	325	319	320	30”
1001-2000-A	325	321	322	35”
2001-3000-A	326	N/A	322	32”
Over 3000-A	326	N/A	324	44”

*Consult Idaho Power for 1-Ø services above 1200A and 3-Ø services above 3000A.

Services above 600-Volts

Consult Idaho Power for requirements on services above 600-volts.

Primary Metering

A customer is considered a Primary Service Level customer if:

1. The customer is served by a transformer rated at least 1,000-kVA or by multiple transformers that in aggregate have a rating of 1,000 kVA or higher and the facilities are dedicated solely for use by the individual customer.
2. The customer owns the primary facilities through which service is to be delivered.
3. The customer is served through a single transformer rated less than 1,000-kVA or by multiple transformers that in the aggregate have a rating of less than 1,000-kVA, the facilities are dedicated solely for use by the individual customer, and it can be reasonably foreseen and expected that the customer's load will grow to exceed 1,000-kVA of installed transformation.

The service voltage at the point of delivery must be 12.5-kV to 34.5-kV for a customer to be classified as a Primary Service Level customer. Contact Idaho Power for additional information.

Meter Location

The meter and any associated equipment must be located such that the installation and any future maintenance can be performed without undue inconvenience to the customer or Idaho Power.

The meter must be in a protected area to minimize the risk of inadvertent damage. Place the meter in front of the fence to provide the best service access for Idaho Power personnel; keeping them from having to go in the backyard. The preferred location for residential meters is shown in Figure 24.

The meter base, conduit, and any CT enclosure must be adequately supported on the outside of an exterior structure wall so that it will be readily accessible to Idaho Power. **Do not cover or enclose the meter**.

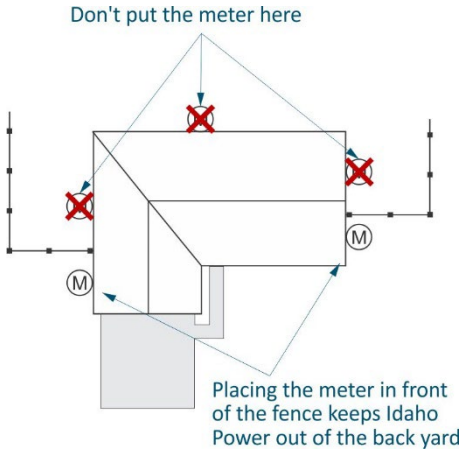


Figure 24 Residential Meter Location

Working Space

The 36×36 inch area directly in front of the meter base must be clear of equipment, landscaping, or other obstacles that will interfere with access, see Figure 25.

Equipment not associated with the meter or service must be kept out of this space on either side of the base. This includes door frames for inward-swinging doors or perpendicular walls. Frames for outward-swinging doors must be at least 36 inches from the edge of the meter base.

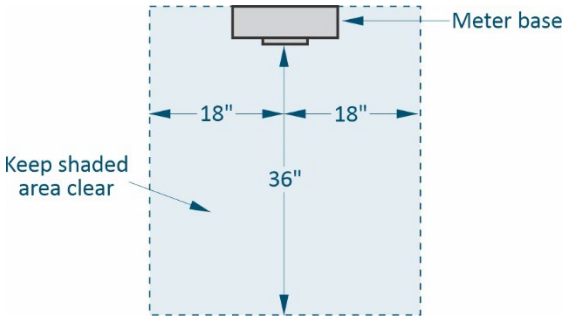


Figure 25 Working Space Around Meter Base

Meter Height

Permanent Meters

The preferred height for all permanent meters is five (5) feet, six (6) inches (to the center of meter socket) above finished grade or other accessible surface such as a deck or stairs. Meters may be mounted between four (4) feet and six (6) feet, except in areas with heavy snowfall where the minimum height is five (5) feet.

Self-contained meters for underground services not associated with a building, such as pedestals or on freestanding racks, may be mounted as low as three (3) feet.

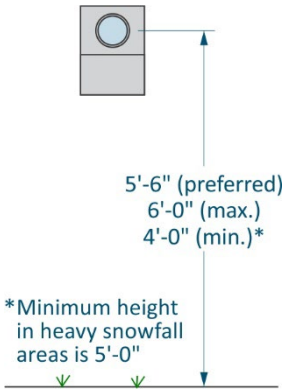


Figure 26 Permanent Meter Height

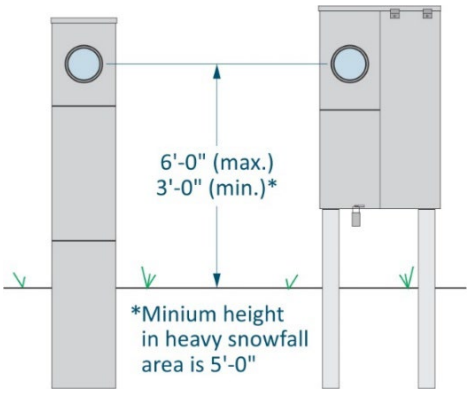
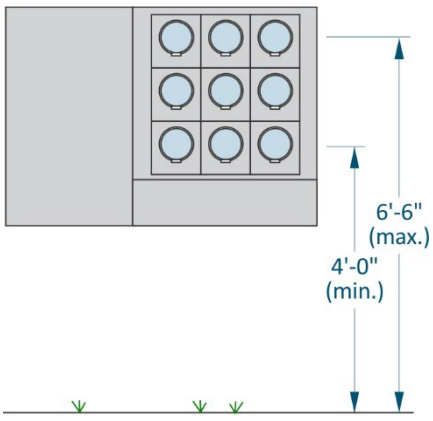


Figure 27 Meter Pedestal and Freestanding Meter Height

Multi-meter Equipment

The top meter in multi-meter equipment must be no higher than six (6) feet, six (6) inches; and the bottom meter must not be lower than four (4) feet. Multi-meter equipment must be mounted to the building served by the meters.

Figure 28 Multi-meter Heights



Meter Poles

Poles for mounting non-CT metering equipment are provided, installed, and owned by the customer. Customer-owned meter sockets are not allowed on Idaho Power-owned poles. Meter poles must be tall enough to provide adequate clearance above the finished grade or obstacles for the service conductors and drip loop, see **Table 1 Minimum Conductor Heights** page 33. Meter poles shorter than 25 feet must be approved in advance by Idaho Power.

A minimum Class 6, round, wood pole is required for permanent service, see Definitions. Meter poles must have a minimum setting depth of 10% of the length of the pole plus two (2) feet, six (6) inches. Additional bracing must be installed if the tension of the service conductors will cause the pole to lean.

Multiple Meters

Multiple meters may be installed on a building or structure to serve multiple occupants' loads through a single point of delivery. At the time of energization, each individual occupant's space must be separated by a demising wall (or fire-rated wall where required by *the International Building Code*), unless otherwise noted on page 27, and have only one meter serving that occupant. House panels that feed loads common to all occupants may be served from a separate meter. Exceptions require prior written approval by Idaho Power and the AHJ.

Service for multiple meter occupancies may be accomplished by one of the methods described in this section. These requirements apply to all 1-phase and 3-phase, multi-occupant services at 600-volts and below and less than 1000-kVA of transformation. Safety socket test bypass meter bases are required for 480-volt services. Multi-meter installations may not be metered at the transformer. A main disconnect is required when more than six meters are connected from a single point of delivery.

> **NOTE**–Equipment connected to the supply side of a service disconnect must comply with NEC 230.82, have an AIC rating greater than the available fault current and be grounded per NEC 250.

All branch circuits must only be supplied from the meter(s) serving each individual premises. HVAC equipment and its associated controls cannot serve more than one premises unless it is powered from a house meter that is common to all premises.

Multi-meter Packs

A multi-meter pack with 200-amp meter sockets may be utilized to serve a single, 200-amp panelboard in each occupant's space or a house panel. Idaho Power will serve this equipment with one set of service conductors from the transformer to the multi-meter pack, see Figure 29.

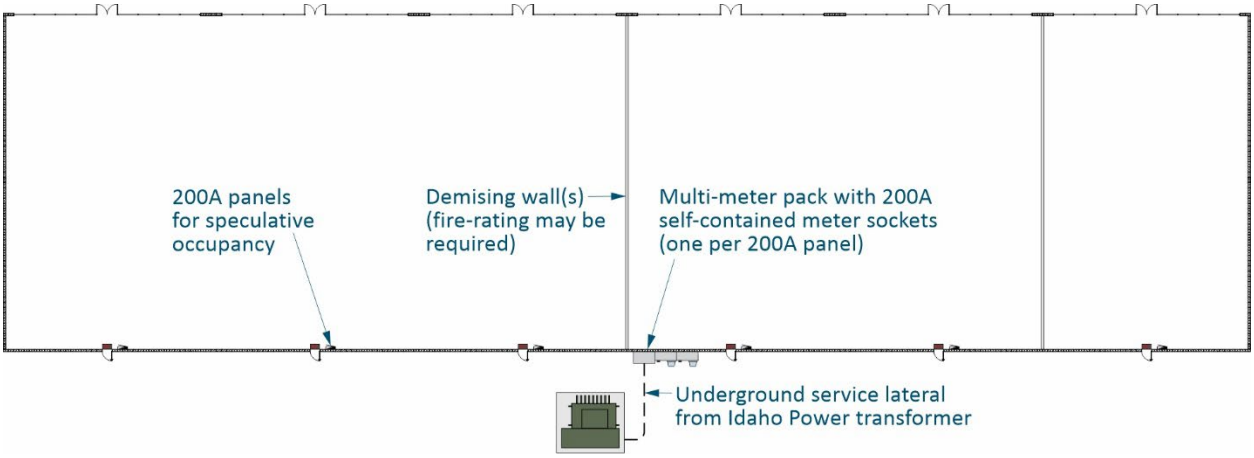


Figure 29 Multi-meter Packs

Energization. Idaho Power will connect and energize the multi-meter pack prior to individual occupants' distribution panelboards being installed only if the branch feeder disconnecting means are installed or manufacturer's blank covers are in place, and the installation has passed an electrical inspection by the AHJ. Individual occupant's meters will be installed when the occupant's distribution panelboards are installed, connected, labeled, and have passed an electrical inspection by the AHJ.

Switchboard Metering

A main distribution switchboard may be utilized with a combination of bus-mounted CTs for each individual occupant requiring more than a 200-amp service; and a 200-amp meter socket for each individual occupant requiring a single, 200-amp service or a house panel. Provisions for additional metering of future, individual occupants may be included to allow flexibility. The switchboard must conform with EUSERC standard drawings as described on page 21 with the ability to seal all metering compartments. Idaho Power does not provide the CT bus links.

Idaho Power will serve this equipment with one set of service conductors from the transformer to the switchboard, see Figure 30.

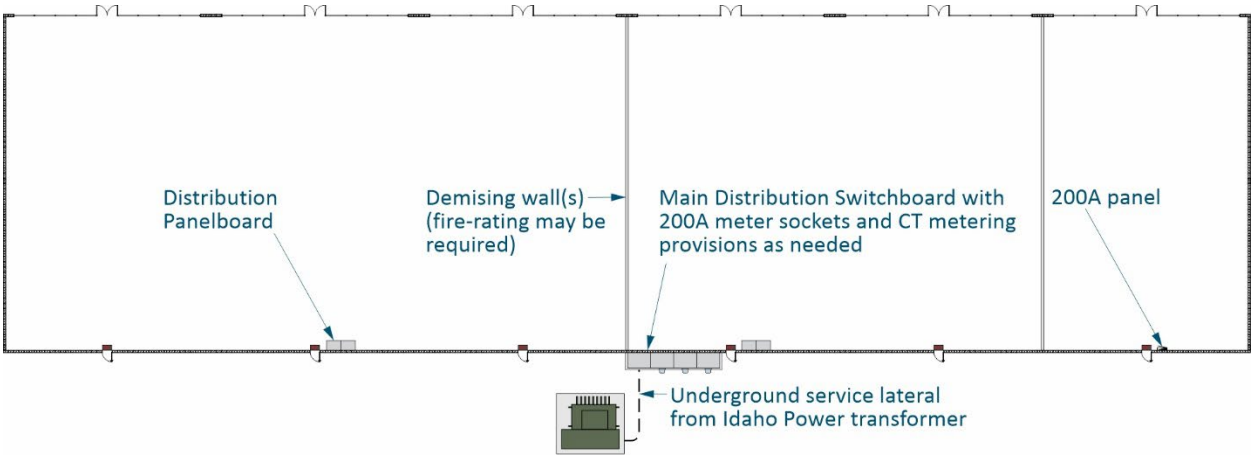


Figure 30 Switchboard Metering

Energization. Idaho Power will connect and energize the main switchboard prior to individual occupants' distribution panelboards being installed only if the branch feeder disconnecting means are installed or manufacturer's blank covers are in place, and the installation has passed an electrical inspection. Individual occupant's meters will be installed when the occupant's distribution panelboards are installed, connected, labeled, and have passed an electrical inspection by the AHJ.

Multiple Meter Bases

Multiple, self-contained and/or CT meter bases may be installed from a single point of delivery as allowed by the NEC and approved by the AHJ. For services up to 800-amps, provide a CT cabinet with busbar, see page 20, and bus link. For services up to 2000-amps, a bussed secondary termination enclosure that may be either wall- or pad-mounted is required. Power distribution blocks installed on the line side of service equipment must be listed for this application with an AIC rating greater than the available fault current. The enclosure must be grounded per NEC 250, be sealable with an Idaho Power meter seal or padlock, and cannot contain materials or connections requiring inspection or testing.

Idaho Power will serve this equipment with one set of service conductors from the transformer to the termination enclosure, see Figure 31. Idaho Power will not terminate its conductors directly to a customer-owned breaker, see page 55.

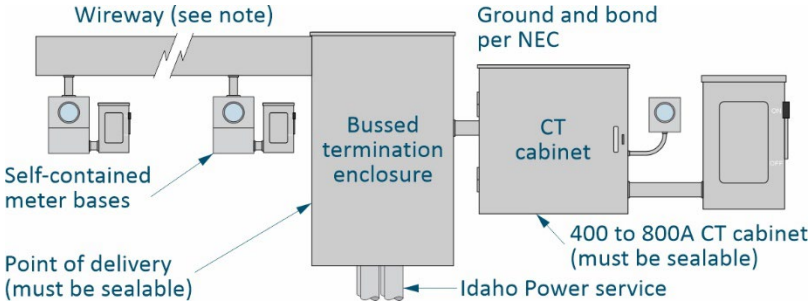


Figure 31 Example Service with Multiple Meter Bases up to 2000A

NOTE–Wireways are not preferred and are only allowed for customer-owned conductors where no splices or terminations are made within the wireway, and the conductor fill ratio and derating of the conductors meets the requirements of the NEC. The wireway must be capable of being sealed with an Idaho Power meter seal. Idaho Power will not install, own, or maintain conductors in a wireway or tap gutter.

Energization. Idaho Power will connect and energize the service once all meter bases, disconnects and individual occupants' and house panelboards are installed, connected, and labeled; and the installation has passed an electrical inspection by the AHJ.

Separate Services

Each individual occupant's space may also be treated as a separate building with its own service when the spaces are separated by fire-rated walls in accordance with the International Building Code. Individual occupant spaces requiring a 200-amp service may utilize a single-gang meter socket or be served as part of a multi-meter pack as described above. Individual occupant spaces requiring more than 200-amps and up to 800-amps may utilize a CT cabinet as described on page 21. Individual occupant spaces requiring a service larger than 800-amps must be served from switchboard(s) that conform with EUSERC standard drawings as described on page 21. An occupant requiring more than 1000-kVA of transformation will require a primary meter and a separate transformer from other building occupants.

Idaho Power will serve each occupant with a separate set of service conductors, see Figure 32. A secondary bus cabinet is required when more than six runs of service conduits are needed to serve all the occupant spaces or to provide for future occupant needs.

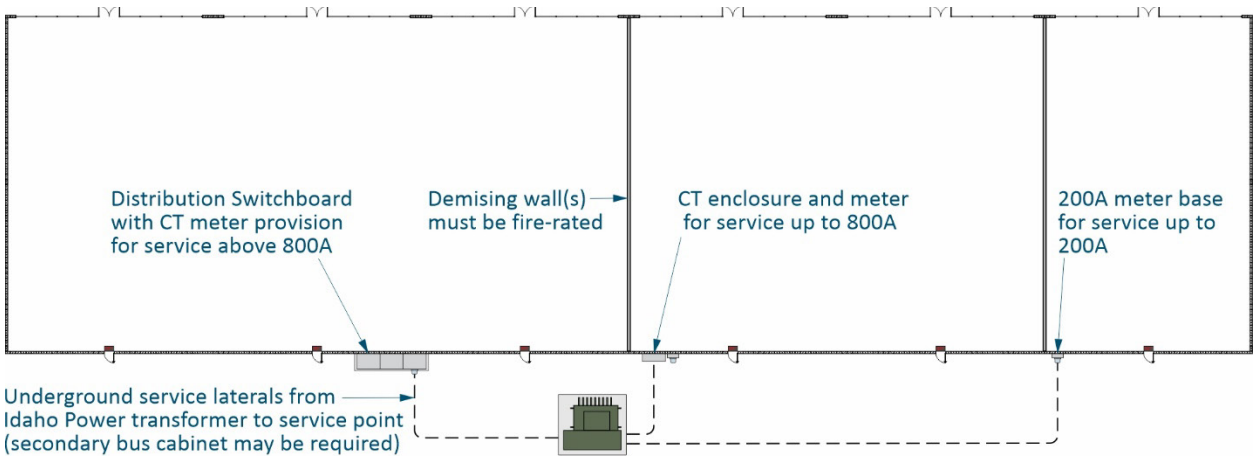


Figure 32 Separate Services

Energization. Idaho Power will connect and energize each individual occupant's service when the distribution panelboard for the occupant is installed and has passed an electrical inspection by the AHJ.

Additional Meters

Additional meters serving the same building or occupant are permitted under one of the following situations:

- **Special Conditions—**Additional services are permitted to supply fire pumps, emergency, or standby systems, and systems designed with multiple sources for enhanced reliability.
- **Capacity Requirements—**Additional services are permitted where the load requirements are greater than Idaho Power can supply through one service.
- **Different Characteristics—**Additional services are permitted for different voltages or phases or for different uses, such as billing for different Rate Schedules.
- **Customer Generation—**Additional services may be required for onsite parallel power production; see **Understanding Customer Generation** at Idaho Power.com for more information.
- **Speculative Buildings—**Idaho Power's intent and practice is to serve commercial and industrial businesses through one meter at each Premises. Accordingly, commercial and industrial buildings must be designed to meet Idaho Power's metering requirements which will be served through a single point of delivery to match the developer's declared occupancy requirements at the time of request; however, if transformation for the premises is less than 1,000 kVA and the long-term objective of the building is to allow for dynamic occupancy, Idaho Power may allow an individual commercial business to be served through multiple meters.

Service Identification

When a building or structure is supplied by more than one set of service conductors, a permanent plaque or directory is required at each service location denoting all other services supplying that building or structure and the area served by each as required by NEC 230.2(E).

Meter Base Labeling

Each meter base or service disconnect that is part of an installation with multiple meters is required to use a permanent nameplate or placard to clearly mark the numbers and/or letters that correspond to the address, suite, office, or room it serves. In addition, mark the corresponding distribution panelboard(s) in each space—this marking may be hand-written inside the equipment.

Permanent labeling includes engraving a minimum of ¼ inch high lettering on one of the following:

- UV resistant phenolic nameplate
- UV resistant Gravoply nameplate
- Stainless steel or brass nameplate

Affix nameplates to meter base using rivets or weather-resistant adhesive intended for the materials being bonded together. Hand-written information or self-adhesive alphanumeric labels are not acceptable, see Figure 33.

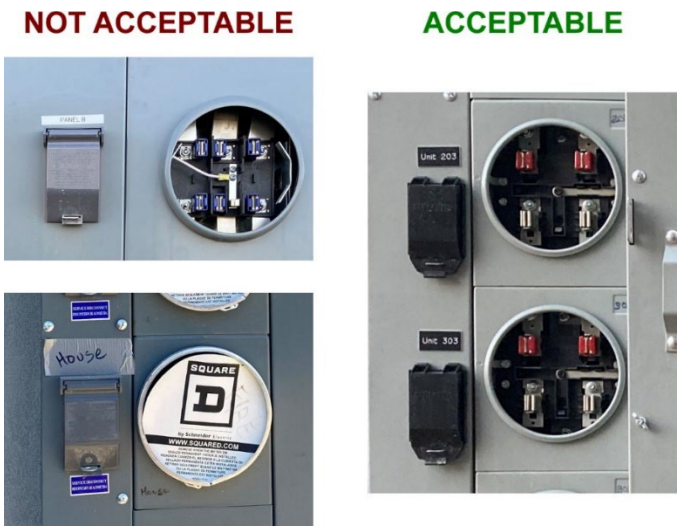


Figure 33 Meter Base Labeling

Meter Rooms for Multiple Meters

Multiple meter installations for multi-occupant buildings may be in a meter room if **all** the following criteria are met:

- A plan for the meter room must be submitted to Idaho Power for approval prior to construction.
- The meter room shall meet the requirements of NEC Article 110.26 for Spaces About Electrical Equipment.
- The meter room shall be located as close to the transformer as possible.
- The meter room shall always be accessible to Idaho Power, preferably through an exterior metal door without having to pass through an interior space.
- A lock box shall be provided outside the door with an access key provided by the customer.
- The meter room door shall be permanently labeled “Electrical Room” or “Meter Room.”
- The meter room may only be used for electrical equipment and communication equipment that does not interfere with the electrical equipment; no storage of any kind is allowed.
- The meter room shall have emergency lighting providing a minimum of 30 lumens per square foot and a 120V receptacle.
- Fire risers and water valves are not allowed in meter rooms. Fire sprinkler heads shall not be directly above meter panel equipment.
- Drainage and ventilation that provides air circulation sufficient to remove heat, fumes, or vapors are the responsibility of the customer.

NOTE–The meter for a single occupant building may not be installed in an electrical or meter room.

Contact Idaho Power for meter room requirements in high-rise buildings, i.e., five or more stories above street level requiring multiple meters.

Temporary Service

General

A Temporary Service is a non-recurring service for construction use and is intended for a limited time; not to exceed 12 months. Use the form on the Idaho Power website, Temporary Service Request-Idaho Power, to request a temporary service. If the service address is in a subdivision, include all subdivision information as indicated on the form. Then, clearly mark the property with the lot, block, subdivision, and phase of the development to help Idaho Power identify the correct location.

ATTENTION! Idaho Power cannot connect a temporary service without a passed electrical inspection in most cities.

Temporary services shown in this section are 120/240-volt single-phase and 200-amp. Contact Idaho Power about installing a temporary service to discuss the following:

- Determine which transformer or handhole will be used as the source for the temporary service.
- Receive a single-phase temporary service from a three-phase, 120/208-volt source. A regular 120/240-volt meter base is not acceptable since a "network" meter with a 5th lug is required.
- Receive a three-phase temporary service.
- Receive a single- or three-phase 480-volt temporary service.

Overhead Requirements

The customer provided meter pole must be securely set in a location that will allow the temporary service conductor to be attached to the permanent meter location by merely relocating it. A maximum of 100 feet of #2 AWG triplex conductor is allowed.

Underground Requirements

The customer-provided meter post must be securely set within two (2) feet of the handhole, pedestal, or pad-mounted transformer. Dig the post hole and set the post by tamping it in place. Trench up to the transformer, handhole, or pedestal and leave enough wire coiled up in the trench to reach the connection point. Idaho Power will insert the cable into the equipment and backfill the trench.

Overhead Temporary Service

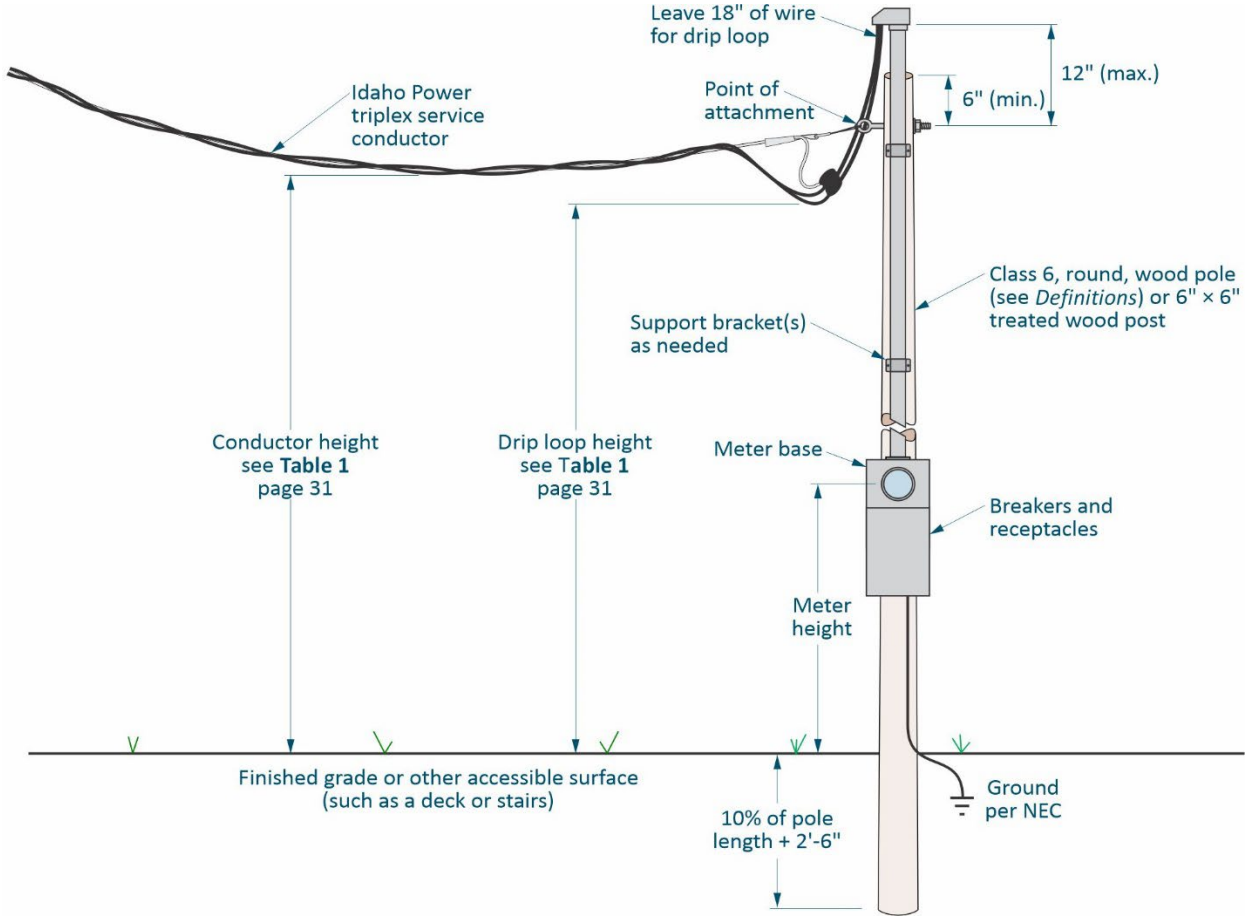


Figure 34 Overhead Temporary Service

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to drip loop	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit, support brackets and weatherhead	Customer	Customer	Customer
Pole for equipment mounting	Customer	Customer	Customer
Point of attachment	Customer	Customer	Customer
Conductors from meter base to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Underground Temporary Service

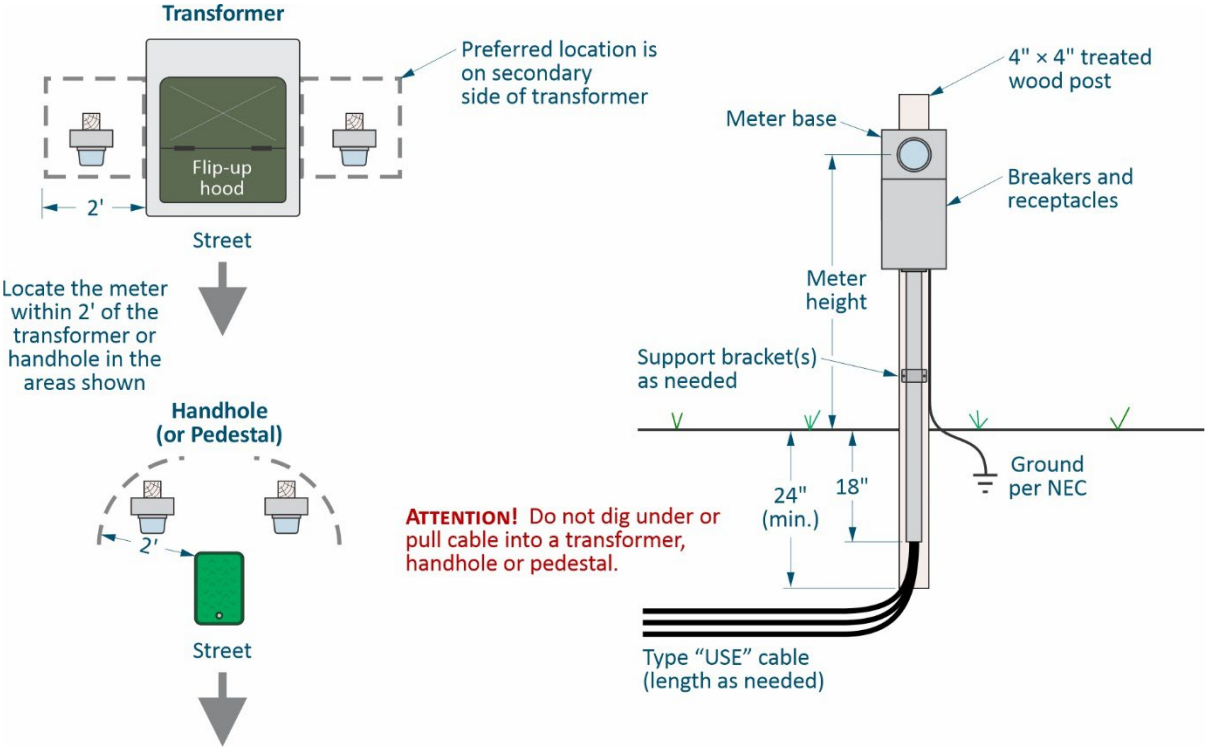


Figure 35 Underground Temporary Service Measurements

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Connectors for temporary conductors at transformer or handhole	Idaho Power	Idaho Power	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit, support bracket(s)	Customer	Customer	Customer
Post for equipment mounting	Customer	Customer	Customer
Conductors from meter base to transformer or handhole	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead Service

Heights for Overhead Service

Overhead services must meet the minimum clearance above the finished grade or other accessible surface as shown below. Make sure the point of attachment is high enough to meet these requirements.

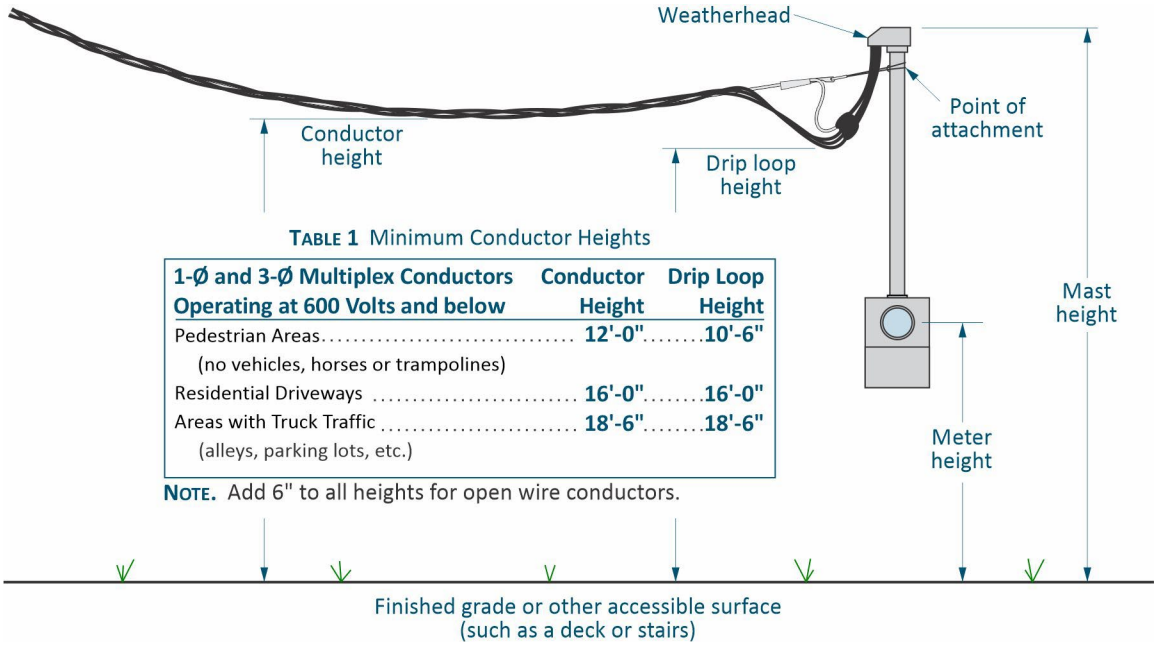


TABLE 1 Minimum Conductor Heights

1-Ø and 3-Ø Multiplex Conductors Operating at 600 Volts and below	Conductor Height	Drip Loop Height
Pedestrian Areas (no vehicles, horses or trampolines)	12'-0"	10'-6"
Residential Driveways	16'-0"	16'-0"
Areas with Truck Traffic (alleys, parking lots, etc.)	18'-6"	18'-6"

NOTE. Add 6" to all heights for open wire conductors.

Figure 36 Heights for Overhead Services

Contact Idaho Power to determine the minimum conductor height requirement when the service conductor must cross over areas that are not addressed here, such as a road, highway, railroad track, canal, waterway, etc.

Point of Attachment

The point of attachment must be high enough to maintain the clearances shown in **Table 1 Minimum Conductor Heights**. The point of attachment on poles must be at least six (6)inches from the top of the pole. For overhead service to a building, the point of attachment must be located below the weatherhead (NEC 230.54).

Exception: Where it is impracticable to locate the point of attachment below the weatherhead, the point of attachment is permitted to be no farther than 24 inches from the weatherhead.

Mast Height

If the installation requires a mast height that exceeds 15 feet above grade in pedestrian areas or 18 feet above residential driveways, **contact Idaho Power prior to construction to verify that the service can be safely installed.**

Services Over Building Roofs

A service conductor or drip loop that crosses over the roof of a building that it serves must meet the minimum conductor height over the roof as shown above in **Table 1 Minimum Conductor Heights**. There are three exceptions where reduced clearances are permitted:

1. A service conductor, or the drip loop, up to 600-volts line-to-line that crosses over a non-accessible roof must have a clearance of 8-½ feet above the roof.
2. A service conductor, or its drip loop, up to 300-volts line-to-line that crosses over a non-accessible roof with a slope of 4-to-12 or greater must have a clearance of three (3) feet above the roof.
3. A service conductor, or its drip loop, up to 300-volts line-to-line that crosses only the eave portion of the roof where it reaches the service mast must have an 18 inch clearance over the roof. The service mast must not be more than four (4) feet from the edge of the roof. Only six (6) feet of the service conductor may be above the roof as shown in Figure 37:

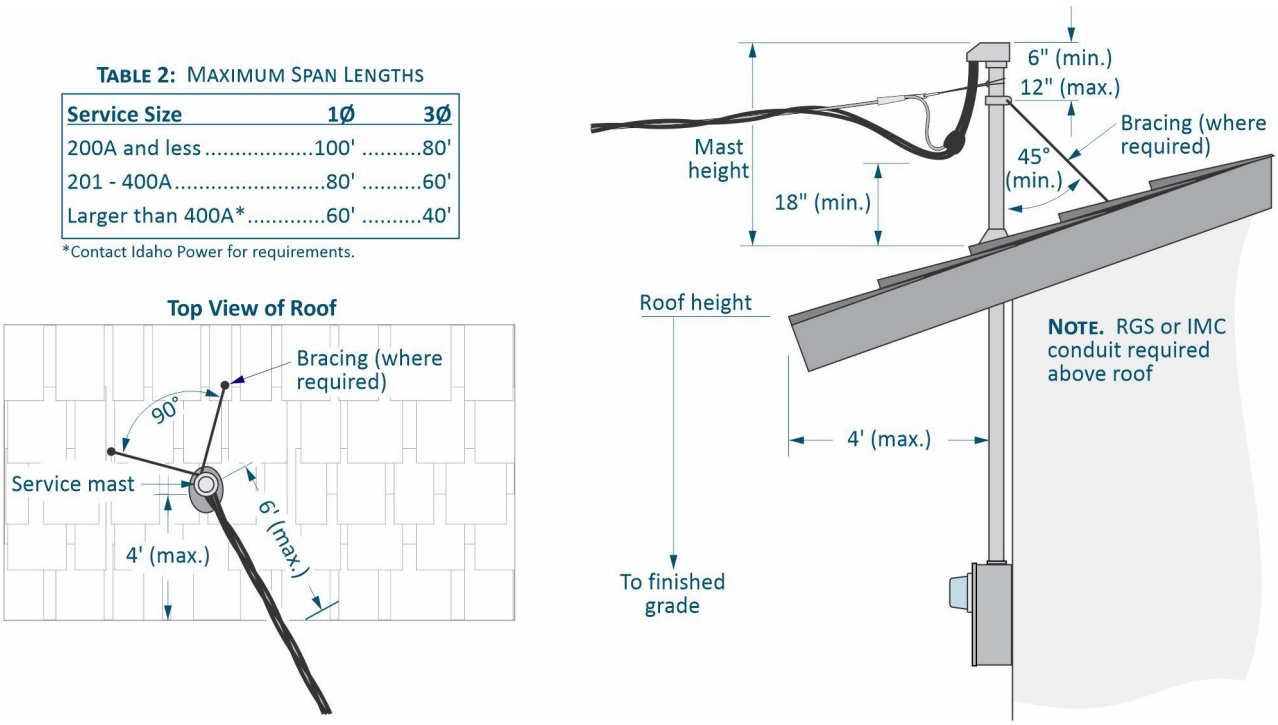


Figure 37 Exception 3 for Services Over Building Roofs

Exception 3 typically applies to the most common installations for service to a building. Exceptions 1 and 2 often apply where the service mast location for the building being served will not qualify for Exception 3. A roof is considered non-accessible if it cannot be reached through a door, window, stairway, or fixed ladder.

Service Conductors Over Other Buildings

A service conductor up to 600-volts line-to-line that passes over the roof of a building but does not serve that building, must have a clearance of 8-½ feet above the roof of the building.

Service Mast

Use a minimum of two (2) inch conduit for service masts. Masts that penetrate a roof must be rigid conduit (RGS or IMC). Non-rigid EMT or Schedule 80 PVC conduit may be used below the roof.

Mast and Roof Height

If the installation requires a mast height that exceeds six (6) feet above a roof, or the roof height exceeds 10 feet above grade (without bucket truck access); **contact Idaho Power prior to construction to verify that the service can safely be installed.**

Bracing

Bracing is required for masts that exceed 30 inches above a roof, in heavy snow areas, or where the service span exceeds the length shown in **Table 2 Maximum Span Lengths**.

Overhead Service Diagrams

Overhead Residential Service (1-Ø up to 400A)

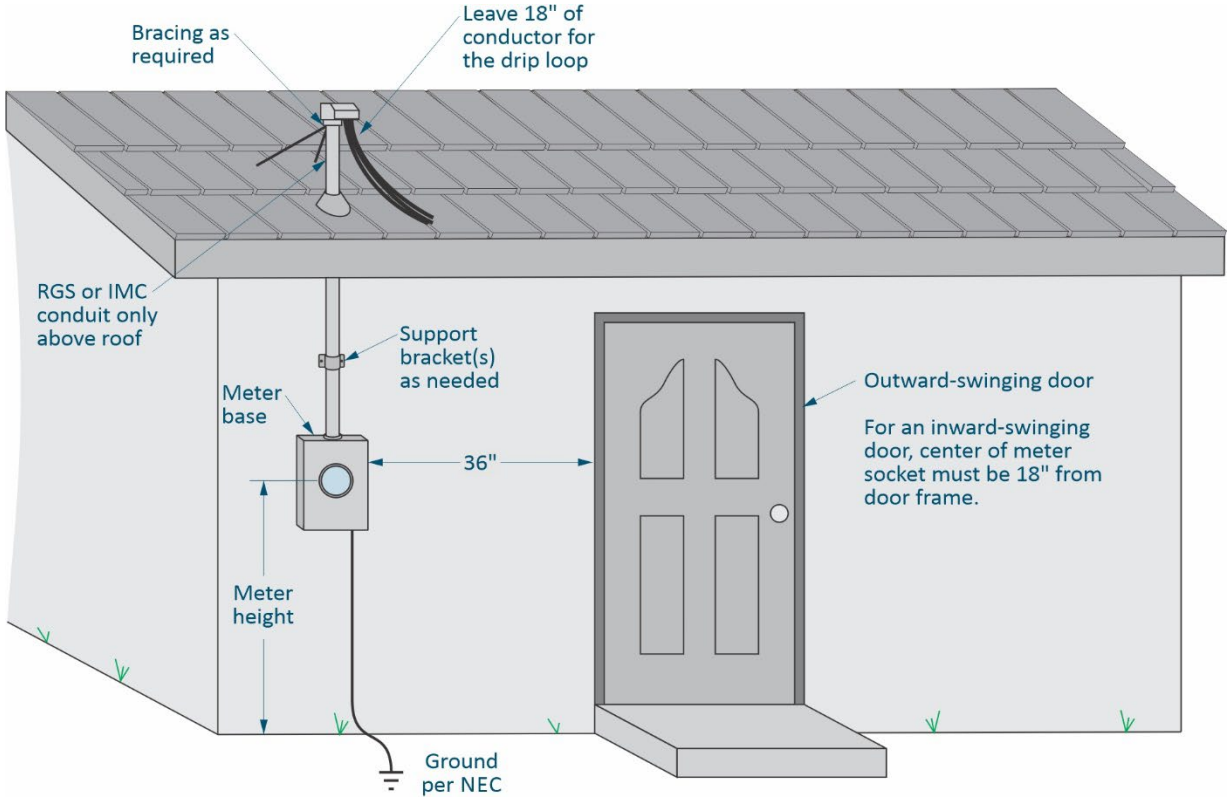


Figure 38 Overhead Residential Service (1-Ø up to 400A)

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to drip loop	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit, support brackets, weatherhead and bracing (as required)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from meter base to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead Commercial Service (1-Ø up to 400A or 3-Ø up to 200A)

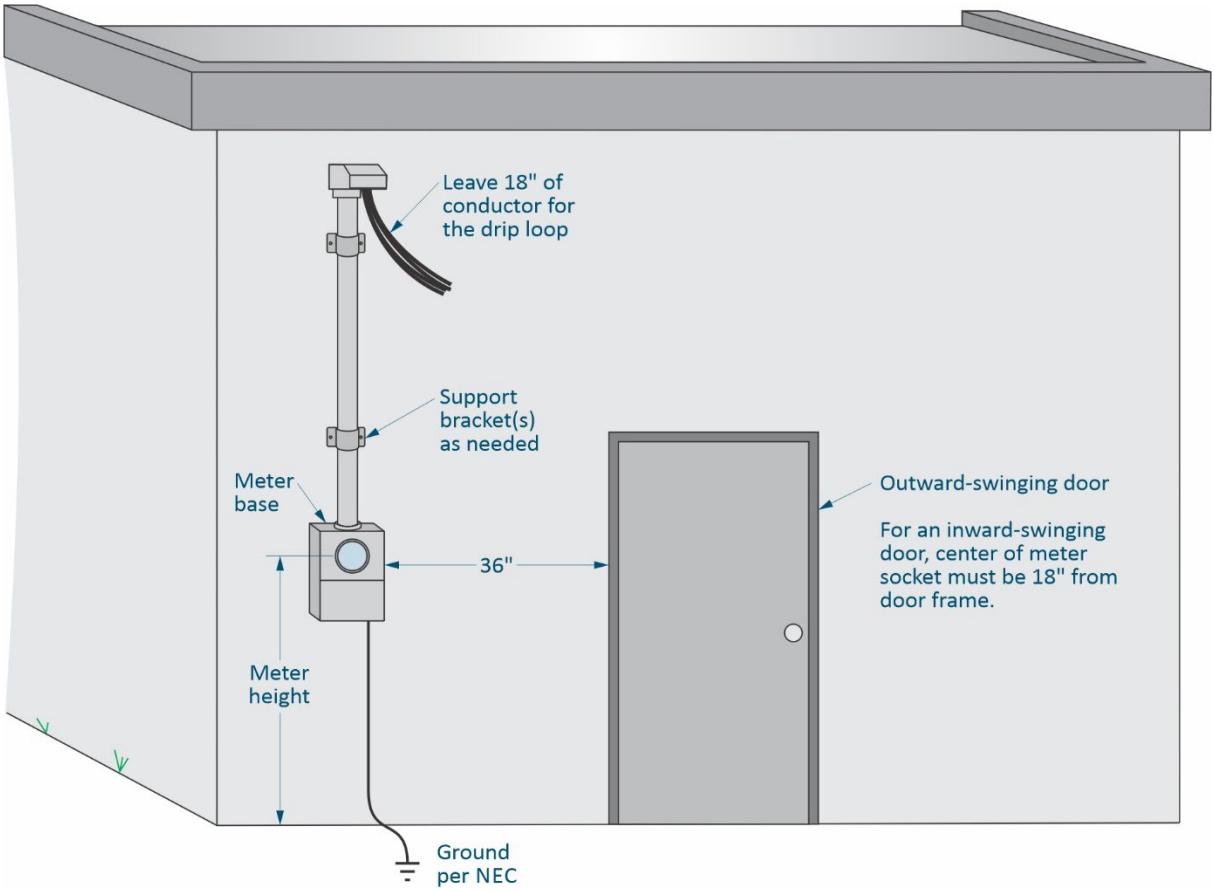


Figure 39 Overhead Commercial Service (1-Ø up to 400A or 3-Ø up to 200A)

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to drip loop	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit, support brackets, weatherhead and bracing (as required)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from meter base to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead Service to a Pole (1-Ø up to 400A or 3-Ø up to 200A)

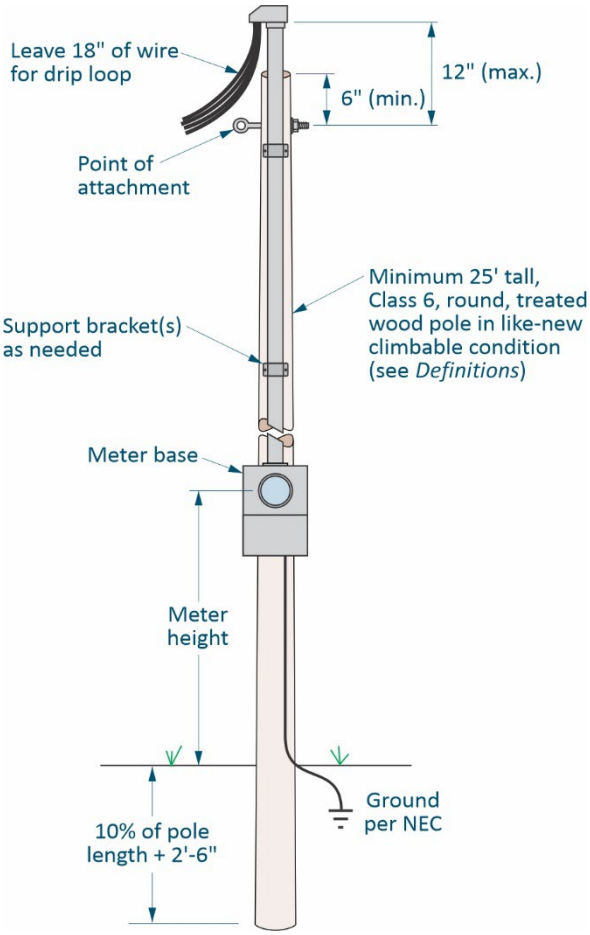


Figure 40 Overhead Service to a Pole

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to drip loop	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit, support brackets and weatherhead	Customer	Customer	Customer
Pole for equipment mounting (see Note)	Customer	Customer	Customer
Point of attachment	Customer	Customer	Customer
Conductors from meter base to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Metal poles or structures may be allowed under certain circumstances and must be approved by Idaho Power prior to installation.

Overhead CT Service to a Building (1-Ø or 3-Ø)—Preferred

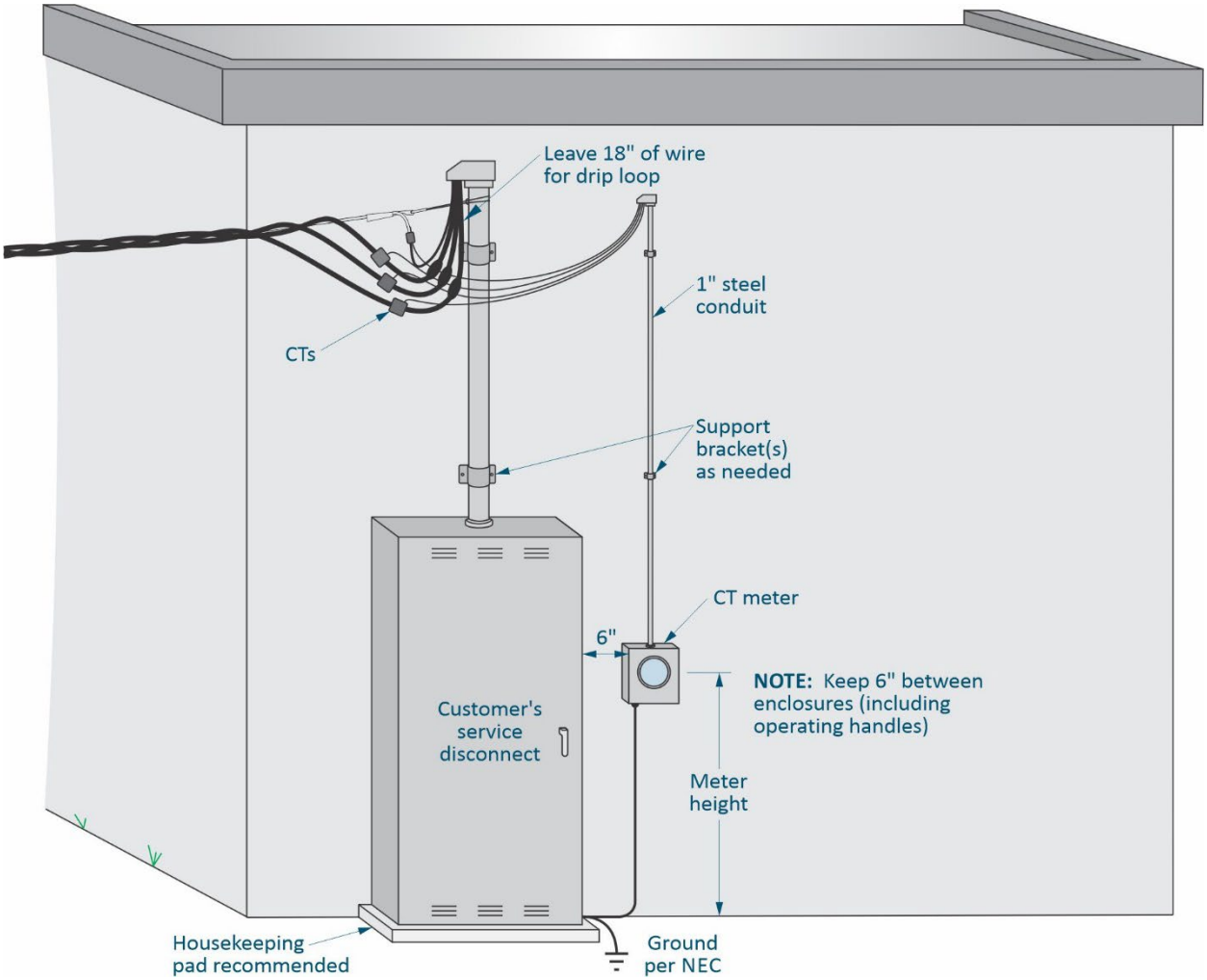


Figure 41 Overhead CT Service 1-Ø or 3-Ø

Item	Provided by	Installed by	Maintained by
CTs and meters	Idaho Power	Idaho Power	Idaho Power
Conductors from drip loop to transformer	Idaho Power	Idaho Power	Idaho Power
Connectors for the service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Customer	Idaho Power
One (1) inch conduit, support brackets and weatherhead for CT wiring	Customer	Customer	Idaho Power
Conduit, support brackets, weatherhead and bracing (as required)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from service equipment to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead CT Service with CT Enclosure (1-Ø or 3-Ø up to 800A)—Not Preferred

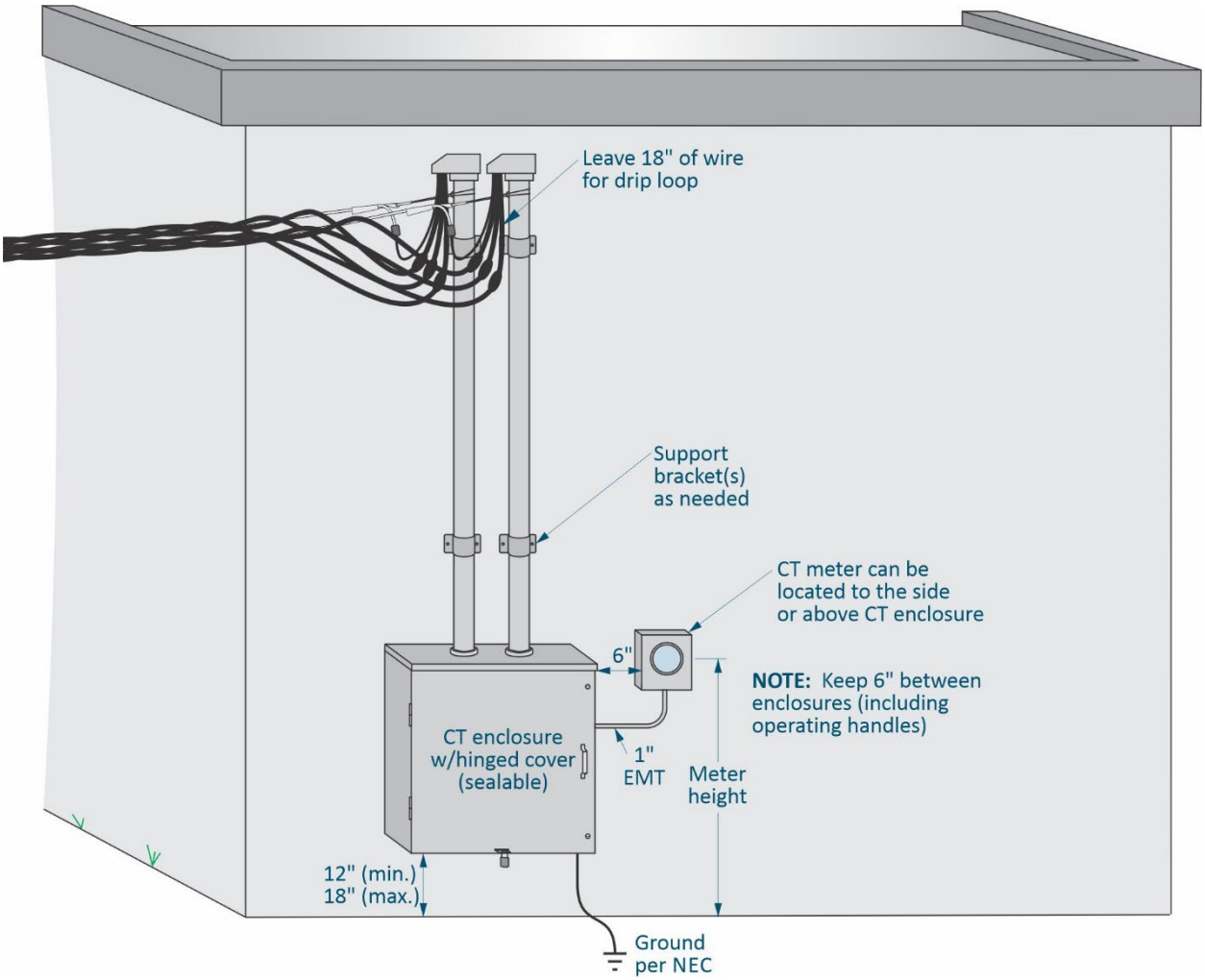


Figure 42 Overhead CT Service with CT Enclosure (1-Ø or 3-Ø up to 800A)

Item	Provided by	Installed by	Maintained by
CTs and meters	Idaho Power	Idaho Power	Idaho Power
Conductors from drip loop to transformer	Idaho Power	Idaho Power	Idaho Power
Connectors for the service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Customer	Idaho Power
One (1) inch conduit, support brackets and weatherhead for CT wiring	Customer	Customer	Idaho Power
Conduit, support brackets, weatherhead and bracing (as required)	Customer	Customer	Customer
CT enclosure w/rack per Idaho Power requirements (see page 21)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from service equipment to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead CT Service on a Customer-owned Pole (1-Ø or 3-Ø)—Preferred for Residential or Commercial

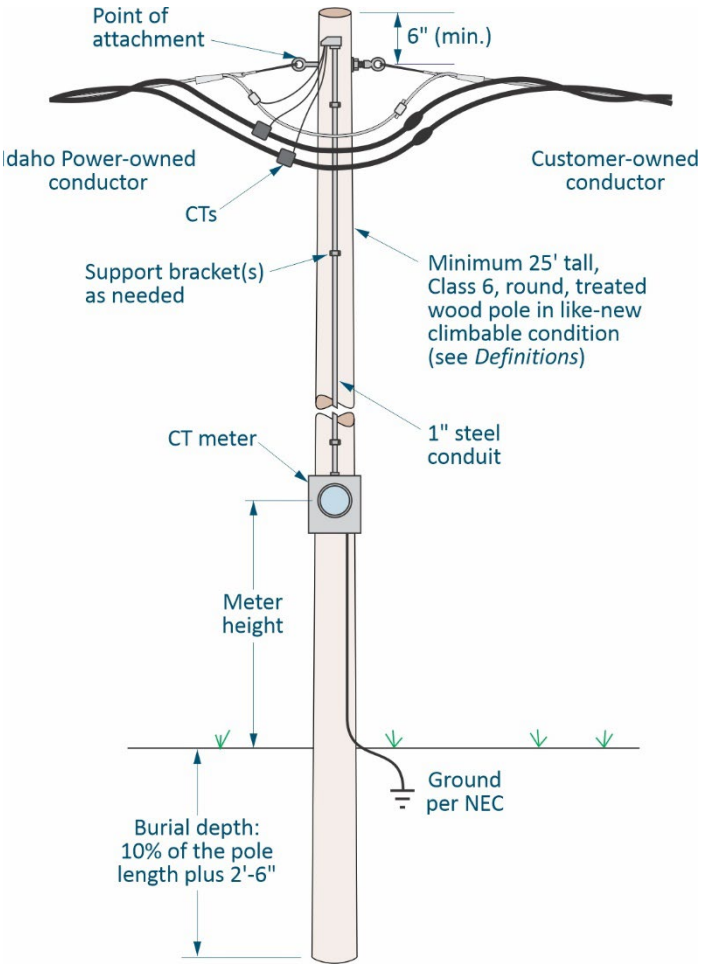


Figure 43 Overhead CT Service on a Customer-owned Pole (1-Ø or 3-Ø)

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
Conductors from drip loop to transformer	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Customer	Idaho Power
One (1) inch conduit, support brackets and weatherhead for CT wiring	Customer	Customer	Idaho Power
Pole for equipment mounting	Customer	Customer	Customer
Point of attachment	Customer	Customer	Customer
Conductors from service equipment to drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Overhead CT Service on an Idaho Power-owned Pole (1-Ø or 3-Ø)—Preferred for Irrigation

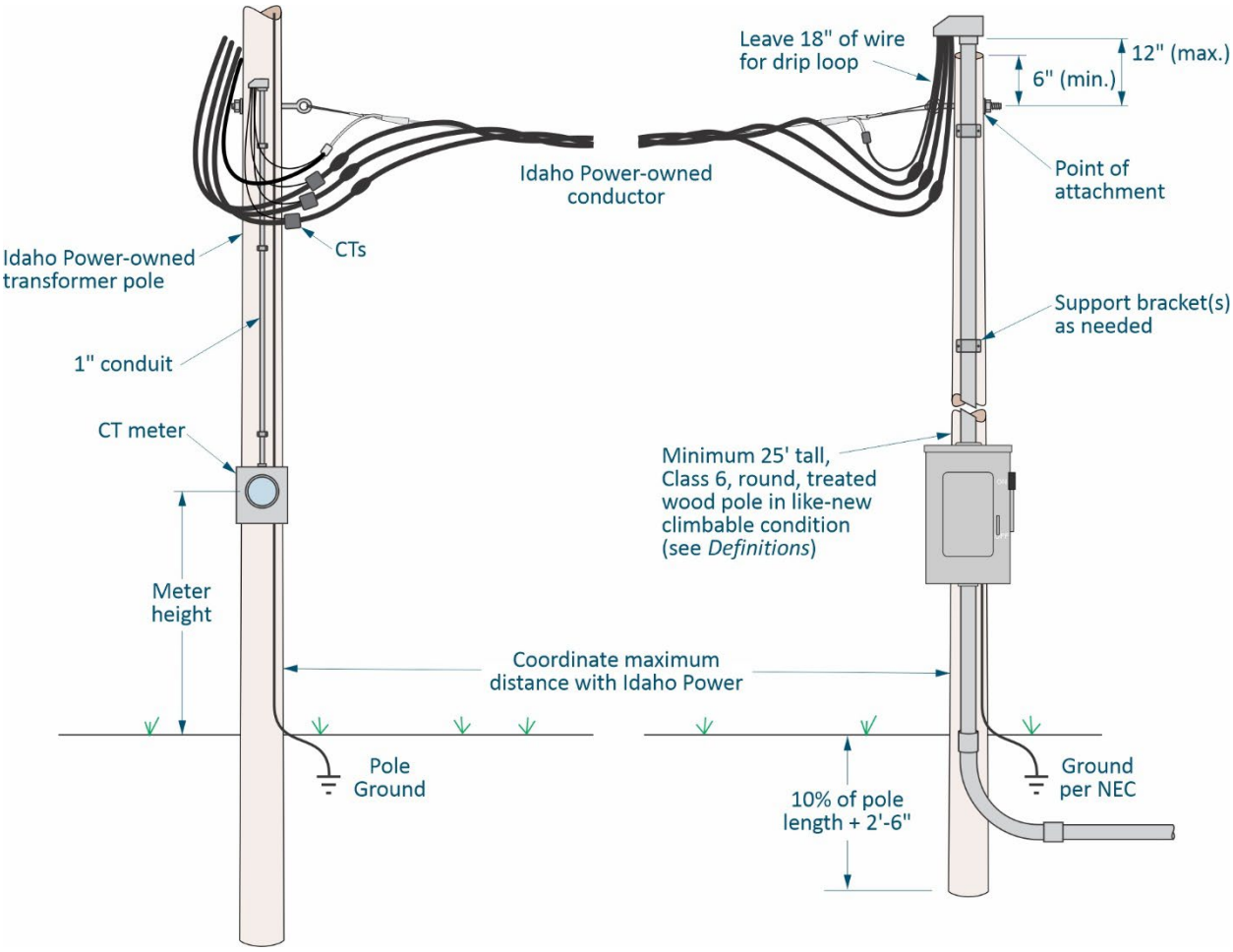


Figure 44 Overhead CT Service on an Idaho Power-owned Pole (1-Ø or 3-Ø)

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
Conductors from drip loop to transformer	Idaho Power	Idaho Power	Idaho Power
Connectors for service conductors at drip loop	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Idaho Power	Idaho Power
One (1) inch conduit, support brackets and weatherhead for CT wiring	Idaho Power	Idaho Power	Idaho Power
Service conduit, support brackets, weatherhead and equipment	Customer	Customer	Customer
Pole for equipment mounting (see Note)	Customer	Customer	Customer
Point of attachment	Customer	Customer	Customer
Conductors from drip loop per NEC	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Metal poles or structures may be allowed under certain circumstances and must be approved by Idaho Power prior to installation.

Underground Service

Sealing for Moisture and Gas

Each meter base that is connected to an underground service where the service conductors are installed in conduit must have all opening(s) between the meter base and the interior of a building permanently sealed to prevent any liquids or vapors from passing into the building; see NEC 230.8, Raceway Seal.

Underground Conduit

Use gray, UL listed, Schedule 40 or Schedule 80 PVC conduit, bends and fittings for Idaho Power-owned service installed below grade. The NEC requires Schedule 80 PVC or another type of rigid conduit above grade and for customer-owned service conduit. All conduit joints must be completely seated and permanently glued with PVC cement. Contact Idaho Power for size and quantity of conduit(s) required.

Conduit and bends must be listed or labeled by a Nationally Recognized Testing Laboratory (NRTL) Program such as UL, ETL or CSA.

Single-phase, residential services

The customer may provide and install the Idaho Power conduit below grade by following the *Underground Residential Conduit Installation Requirements*.

Non-residential services

The customer may work with an Idaho Power designer to determine if it is beneficial for the customer to install Idaho Power-owned underground service conduit. When installing Idaho Power conduit, follow the trench, backfill, and compaction requirements below.

Expansion couplers

Expansion couplers are required for all underground services where the length of conduit between final grade and the service equipment is greater than 18 inches.

Bend Radius

Use grey-colored manufactured bends. For two (2) inch and three (3) inch conduit, use 24 inch radius bends and 36 inch radius bends for larger sized conduits. Do not heat conduit in any way to shape it or form bends in the field!

Burial Depth

Conduit for electrical service conductors must be buried a minimum of 30 inches deep but not more than 36 inches deep, see Figure 45. The trench must be deeper than the burial depth to allow for the diameter of the conduit. Contact Idaho Power if this depth cannot be achieved.

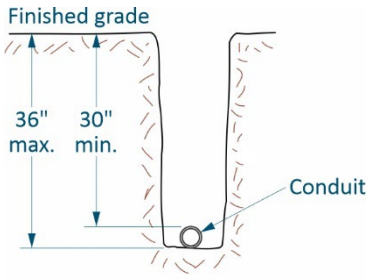


Figure 45 Conduit Burial Depth

Conduit Routing

Route the service conduit in the most direct and straight-line path between the Idaho Power facility (transformer, handhole, or pole) and the meter. Keep the number of conduit bends to a minimum.

Avoid routing service conduit under driveways or in areas where it is reasonable to expect future digging; particularly routes that run along property lines. If the route must follow a property line, keep the conduit at least two (2) feet away. Do not route service conduit under buildings or build over the top of existing service conduits.

Separation from other Utilities

Keep electrical service conduit at least 12 inches from other underground utility lines. Avoid routing electrical conduit parallel to or directly above or below other underground utilities.

Installation

Keep dirt and debris out of the conduit. Make square conduit cuts and remove burrs from the inside and outside edges. All joints must be completely seated and permanently glued with PVC cement. Do not change conduit sizes in the run.

NOTE–Do not dig under a padmounted transformer, or into a handhole or pedestal.

Trench and Backfill Requirements

Trench Spoils

Keep trench spoils at least two (2) feet from the edge of the trench and any property pins or permanent markers and out of the roadway or other access areas where possible, see Figure 46. Remove spoils or debris from the site each day and dispose of it in accordance with all applicable regulations.

CAUTION! Any open trench must be adequately barricaded or protected for public safety as required by local, state, or federal rules and regulations.

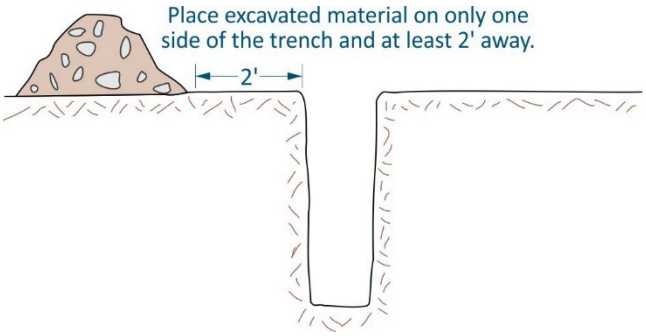


Figure 46 Trench Spoils

Shading and Backfill

Shade the conduit with enough two (2) inch select backfill material to provide a six (6) inch covering, see Figure 47.

This helps protect the conduit from being damaged during the compaction process. After shading, backfill the rest of the trench with six (6) inch select backfill material. Do not put garbage, wood, ice, etc., in the trench.

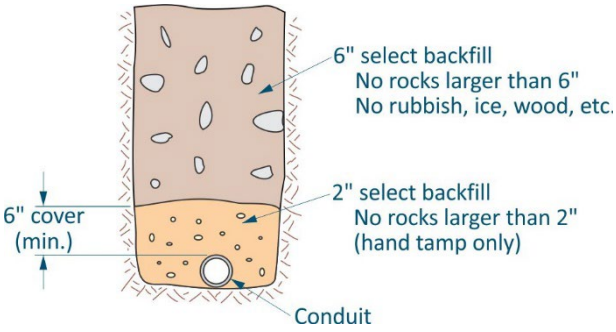


Figure 47 Shading and Backfill

Compaction

Compact all trench backfill to prevent future trench settling. Some settling may be permissible in most new construction spaces that are not under paved areas such as sidewalks, driveways, and road surfaces. These areas are much more sensitive to settling and require high compaction.

Standard Compaction

Standard compaction is required for most new construction projects where some settling is permissible and achieves up to an 80% compaction rate but is dependent on soil conditions. Backfill with the desired material and wheel roll the trench. The first six (6) inches of cover can be native soil with no rocks larger than two (2) inches. The remainder of the trench can be native soil with no rocks larger than six (6) inches.

Medium Compaction

Medium compaction is required when trenching through existing landscaped areas where only minimal trench settling is tolerable. Backfill the trench with the same material as required for standard compaction, but in 24 inch lifts. Compact each lift with a tamping rammer or other similar compaction device.

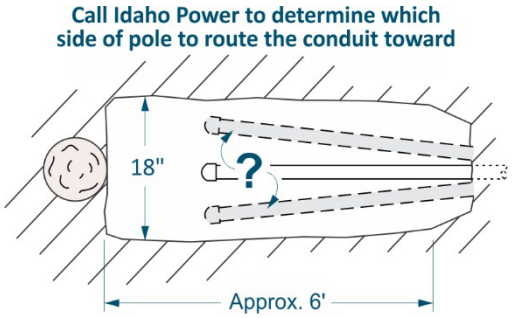
High Compaction

High compaction of 95% or more results in the least amount of trench settling. It is required in certain rights-of-ways and when the trench is under paved or concrete surfaces, such as roads, alleys, parking lots, driveways, and sidewalks. Backfill with ¾ inch road mix, pit run, or sand in 12 inch lifts. Compact each lift with a tamping rammer or other similar compaction device. Using shallower lifts or adding water to the backfill may help reach the desired compaction rates.

Special Requirements for Poles

If the service will come from a pole, contact Idaho Power prior to digging the trench. An Idaho Power representative will determine the following:

1. If the pole is adequate for the service.
2. To which side of the pole to route the conduit.



Trench all the way to the base of the pole. **If the pole becomes unstable, contact Idaho Power immediately!** When backfilling the trench, leave 6- to 8 feet open adjacent to the pole. After Idaho Power connects the pole riser and conduit, it is the Builder's responsibility to backfill and compact any remaining trench.

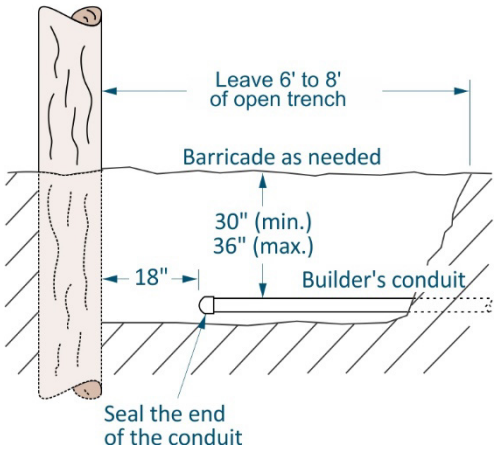


Figure 48 Underground Conduit to a Pole

Non-metered General Service

Service conductors for non-metered services must be a minimum of #6 AWG copper and listed for use as service conductors in wet locations. Permanently identify each conductor by service type with labeling and/or the use of colored insulation as follows:

- Street lighting–BLACK
- Sprinkler controls and other non-lighting loads–RED
- Neutral–WHITE

Stub service conduit into nearest j-box or pedestal and provide a minimum of three (3) feet of service conductors for termination; or route service conduit to edge of pad and provide a minimum of six (6) feet of service conductor for termination. The point of delivery is the termination of the customer-provided service conductors. Do not dig under a transformer.

Handholes in Driveways

Standard-duty plastic handholes cannot be driven on. Heavy-duty handholes can only be driven over if they are cast into a concrete driveway or a concrete area not less than 18 inches larger in all directions than the handhole.

A customer has three options when a driveway or other driving surface conflicts with the location of an existing handhole:

1. Move the driveway away from the handhole, thus avoiding the conflict.
2. Pay Idaho Power to install a heavy duty handhole that is intended for use in sidewalks and residential driveways. These handholes require a six (6) inch-wide concrete border and they are not to be used in vehicular traffic areas.
3. Frame a 24 inch by 35 inch opening in a concrete driveway that will accommodate a steel protective cover to be provided by the customer.
   - The cover must be ⅜ inch steel plating and have a ⅝ inch hole for lifting. Steel plates can be purchased at most welding and fabrication shops.
   - The opening in the concrete must have a ¾ inch by One (1) inch shelf on all four sides to support the cover, which must be flush with the driveway surface.
   - There must be at least two (2) inches between the steel cover and the top of the handhole.

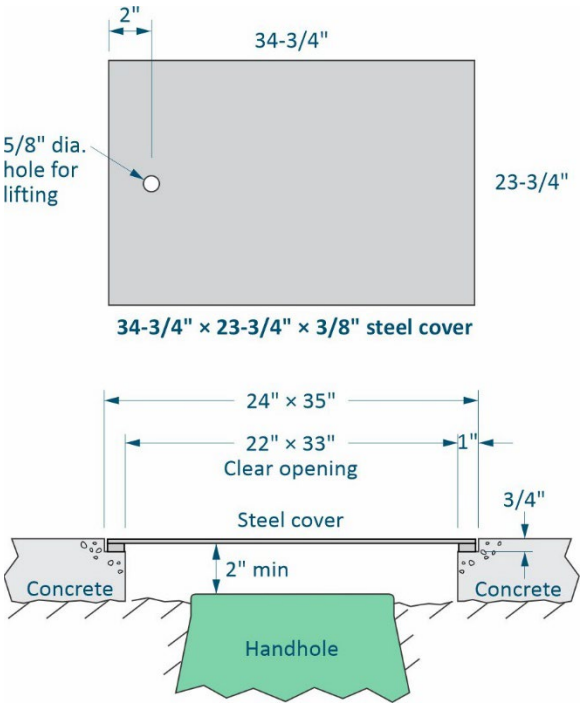


Figure 49 Handhole in a Driveway

Underground Service Diagrams

Underground Residential Service (1-Ø up to 400A)

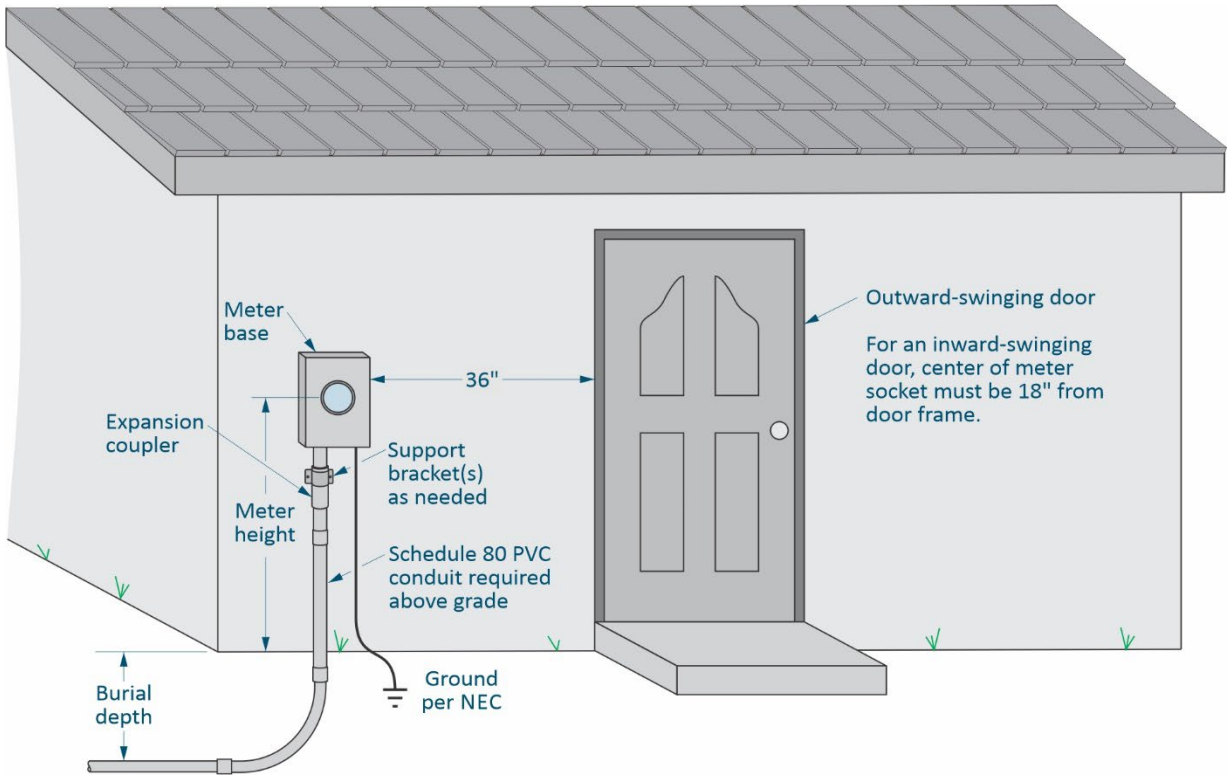


Figure 50 Underground Residential Service (1-Ø up to 400A)

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer or hand hole to meter base	Idaho Power	Idaho Power	Idaho Power
Connection of Idaho Power wire at meter base	Idaho Power	Idaho Power	Idaho Power
Conduit below grade	See Note	See Note	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit above grade, expansion coupler and support bracket(s)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from meter base to main disconnect	Customer	Customer	Customer
Connection of customer wire at meter base	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–The customer may provide and install the underground conduit from the Idaho Power service point to the meter riser for residential services that meet certain criteria; see *Underground Residential Conduit Installation Requirements* for more information.

Underground Commercial Service (1-Ø up to 400A or 3-Ø up to 200A)

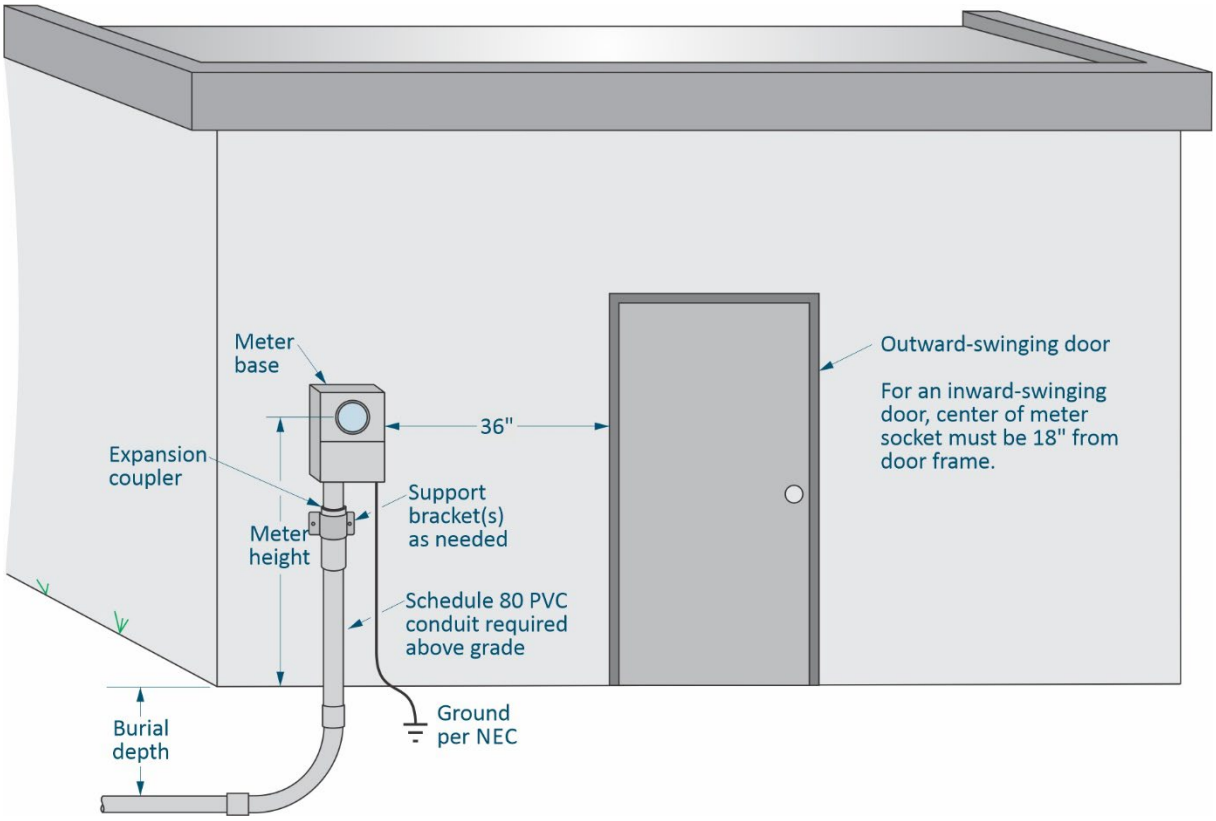


Figure 51 Underground Commercial Service (1-Ø up to 400A or 3-Ø up to 200A)

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer or hand hole to meter base	Idaho Power	Idaho Power	Idaho Power
Connection of Idaho Power conductors at meter base	Idaho Power	Idaho Power	Idaho Power
Conduit below grade	See Note	See Note	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit above grade, expansion coupler and support bracket(s)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Conductors from meter base to main disconnect	Customer	Customer	Customer
Connection of customer conductors at meter base	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Idaho Power-owned Underground CT Service (1-Ø or 3-Ø up to 800A)

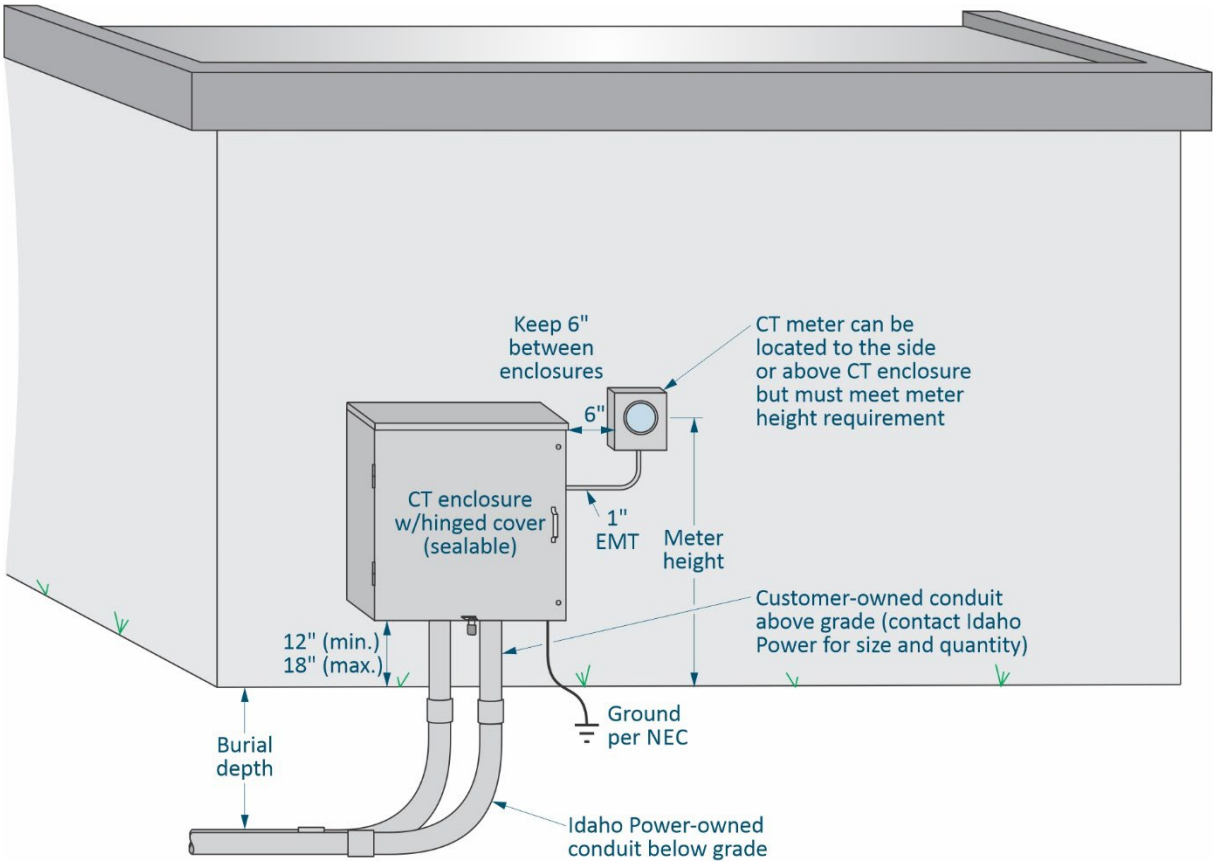


Figure 52 Idaho Power-owned Underground CT Service (1-Ø or 3-Ø up to 800A)

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
Conduit below ground	See Note	See Note	Idaho Power
Conductors from transformer to CT enclosure	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Customer	Idaho Power
One (1) inch Conduit for CT wiring	Customer	Customer	Idaho Power
Conduit above ground per NEC	Customer	Customer	Customer
CT enclosure with rack per Idaho Power requirements (see page 21)	Customer	Customer	Customer
Connectors for the service conductors at the CT enclosure	Customer	Customer	Customer
Conductors from CT enclosure to service disconnect per NEC	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Customer-owned Underground CT Service (1-Ø or 3-Ø over 800A)—Preferred

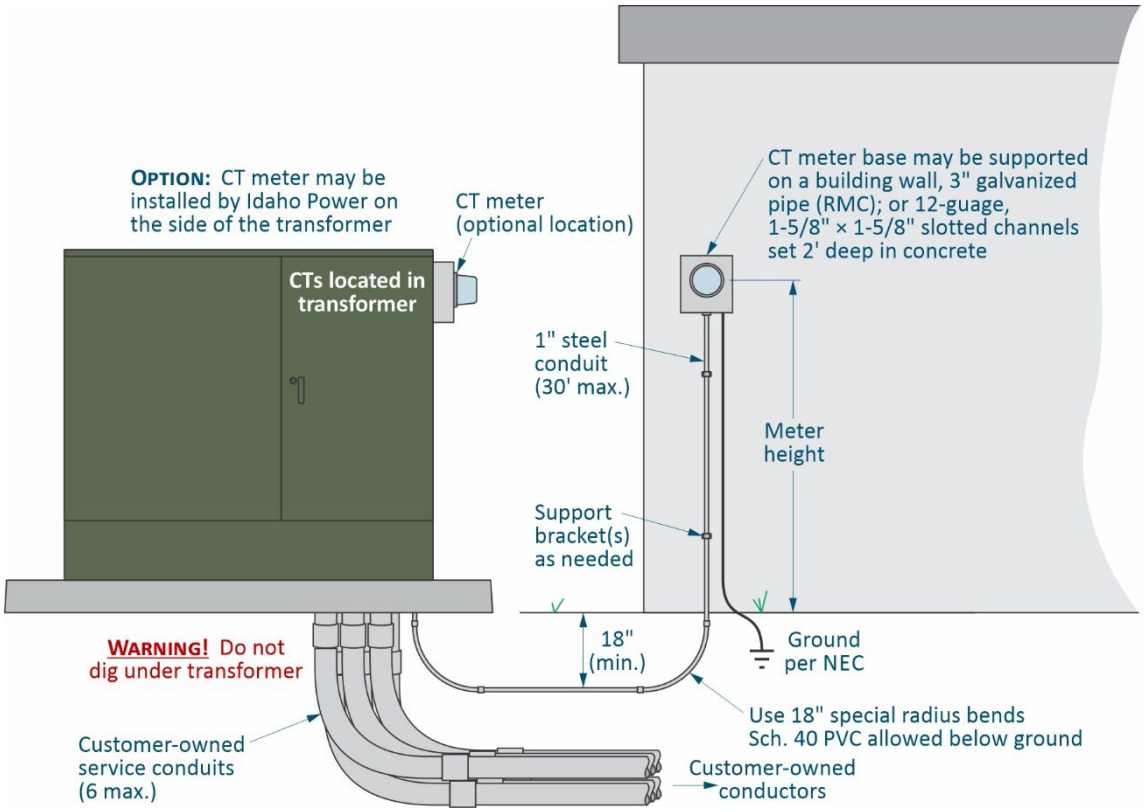


Figure 53 Customer-owned Underground CT Service (1-Ø or 3-Ø over 800A—Preferred)

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs (when not installed on transformer)	Idaho Power	Customer	Idaho Power
One (1) inch Conduit for CT wiring	Customer	Customer	Idaho Power
Conduit below ground per NEC	Customer	Customer	Customer
Conductors from transformer to service disconnect per NEC	Customer	Customer	Customer
Connections for the service conductors at transformer	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Idaho Power-owned Underground CT Service (1-Ø or 3-Ø over 800A)—Not Preferred

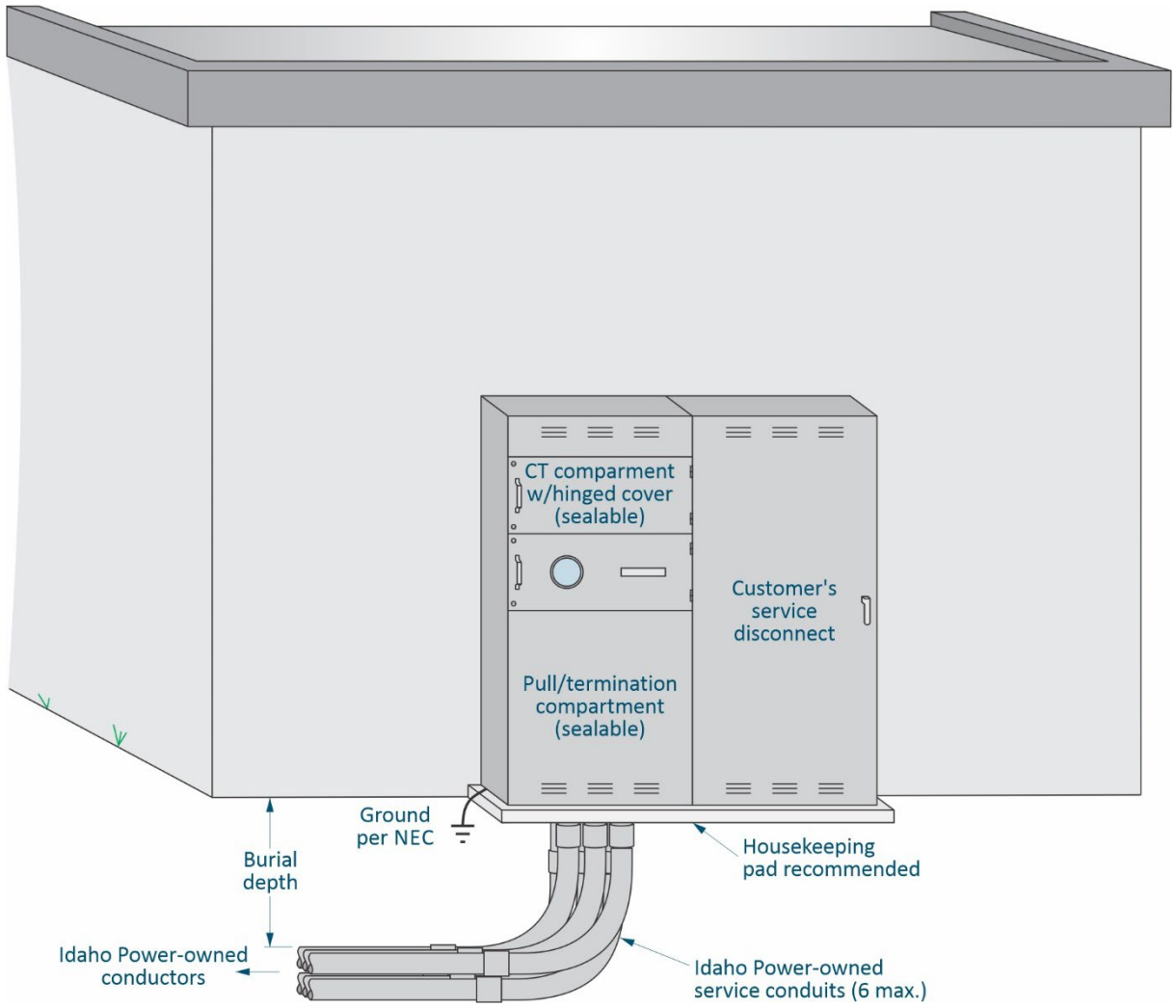


Figure 54 Idaho Power-owned Underground CT Service (1-Ø or 3-Ø over 800A—Not Preferred)

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
Conduit below ground	See Note	See Note	Idaho Power
Conductors from transformer to switchgear	Idaho Power	Idaho Power	Idaho Power
EUSERC switchgear with meter base and bus links (see page 21)	Customer	Customer	Customer
Connectors for the service conductors in termination compartment	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Basement Under Transformer for More than Six (6) Runs of Conductors

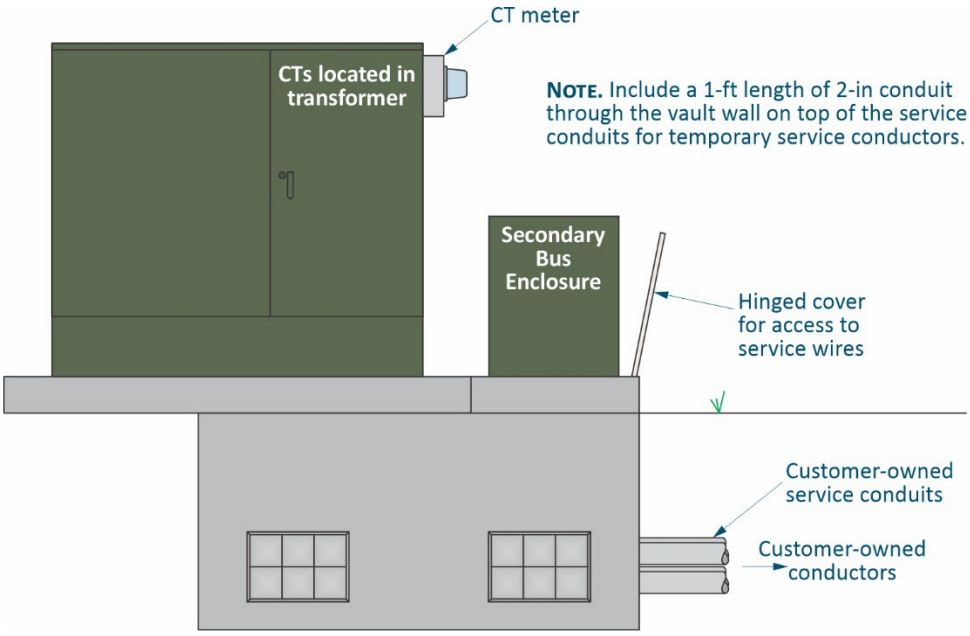


Figure 55 Basement Under Transformer for More than Six (6) Runs of Conductors

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to secondary bus enclosure	Idaho Power	Idaho Power	Idaho Power
Basement and pad w/hinged cover	Idaho Power	Idaho Power	Idaho Power
Secondary bus enclosure	Customer	Customer	Customer
Conduit below grade per NEC (see note)	Customer	Customer	Customer
Conductors from bus enclosure to service disconnect per NEC	Customer	Customer	Customer
Connections for service conductors at secondary bus enclosure	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

Secondary Bus Enclosure for Multi-meter Services or Alternate to Basement Under Transformer for More than Six (6) Runs of Conductors

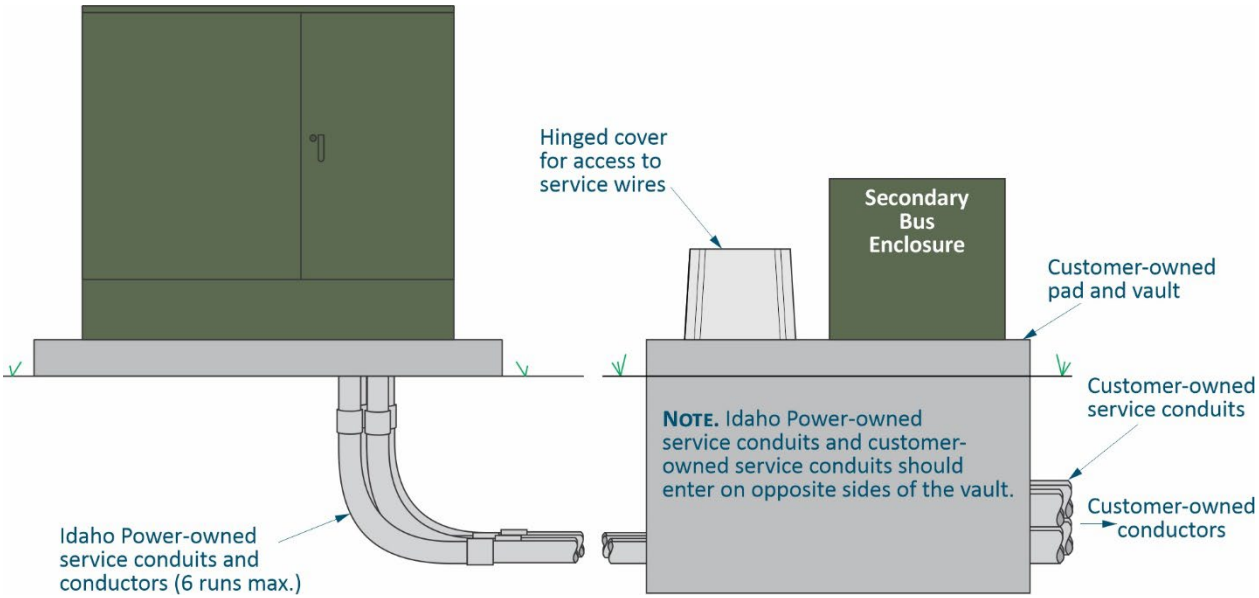


Figure 56 Secondary Bus Enclosure for Multi-meter Services or Alternate to Basement Under Transformer for More than Six (6) Runs of Conductors

Item	Provided by	Installed by	Maintained by
CTs and meter	Idaho Power	Idaho Power	Idaho Power
CT metering wires and connectors	Idaho Power	Idaho Power	Idaho Power
CT meter base with lugs	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to secondary bus enclosure	Idaho Power	Idaho Power	Idaho Power
Conduit below grade from transformer to secondary bus enclosure	See Note	See Note	Idaho Power
Basement and pad	Customer	Customer	Customer
Secondary bus enclosure	Customer	Customer	Customer
Conduit below grade per NEC (see note)	Customer	Customer	Customer
Conductors from bus enclosure to service disconnect per NEC	Customer	Customer	Customer
Connections for service conductors at secondary bus enclosure	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Idaho Power-owned Underground Service to Multi-meter Packs (1-Ø or 3-Ø)

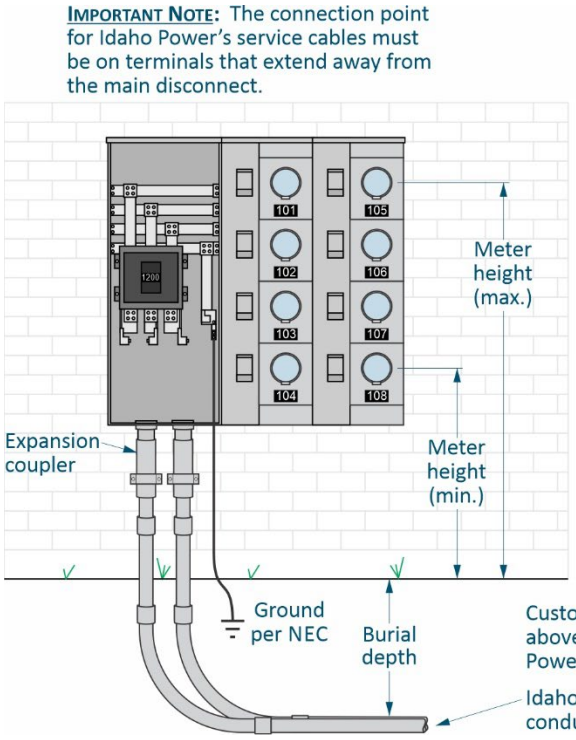


Figure 57 Main Disconnect for 7 or More meters
(3-Ø example shown)

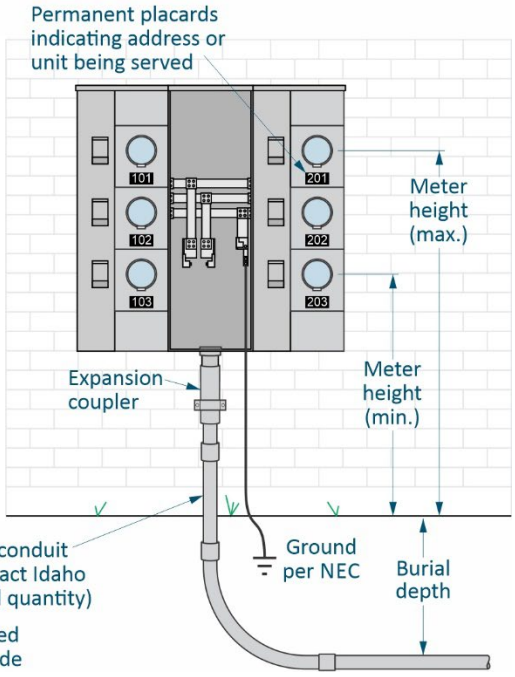
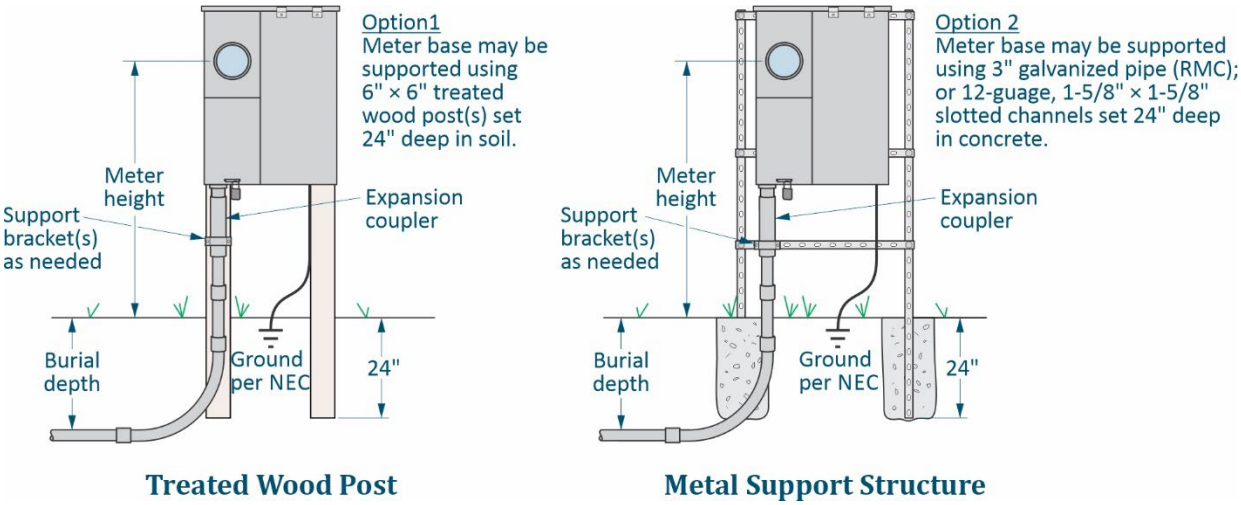


Figure 58 Main Lugs for 2-6 Meters
(1-Ø example shown)

Item	Provided by	Installed by	Maintained by
Meters	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to service entrance section	Idaho Power	Idaho Power	Idaho Power
Connection of Idaho Power conductors at lugs	Idaho Power	Idaho Power	Idaho Power
Conduit below grade	See Note	See Note	Idaho Power
Multi-meter equipment with lugs	Customer	Customer	Customer
Conduit above grade, expansion coupler and support bracket(s))	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Underground Service Not Associated with a Building (1-Ø up to 400A or 3-Ø up to 200A)



*F*igure 59 Underground Service Not Associated with a Building (1-Ø up to 400A or 3-Ø up to 200A)

Item	Provided by	Installed by	Maintained by
Meter	Idaho Power	Idaho Power	Idaho Power
Conductors from transformer to meter base	Idaho Power	Idaho Power	Idaho Power
Connection of Idaho Power conductors at lugs	Idaho Power	Idaho Power	Idaho Power
Conduit below grade	See Note	See Note	Idaho Power
Meter base with lugs	Customer	Customer	Customer
Conduit above grade, expansion coupler and support bracket(s)	Customer	Customer	Customer
Structure for equipment mounting	Customer	Customer	Customer
Grounding electrode(s), ground conductor and connections per NEC	Customer	Customer	Customer

NOTE–Customer may provide and/or install conduits below grade at Idaho Power's direction.

Joint Trench

This section provides information necessary to prepare for and install underground electrical distribution infrastructure in relation to other underground utilities. This information is for use by those involved in land use planning, excavation activities, and property development to help ensure compliance with the NESC, Idaho Power's requirements, and industry best practices.

Required Information

Each city or county may have differences in their requirements for residential subdivisions and commercial developments. Typically, each jurisdiction will require a plat map showing the proposed utilities and associated easements for placement of utility facilities. The following specifications and details shall be incorporated to ensure clearance requirements are met from electric transformers to structures, proper conduit installation, and sufficient easements are provided:

- A copy of the recorded subdivision plat showing:
  - Property lines
  - Lot and block numbers
  - Road rights-of-way and easements
  - Street names
  - Curb and sidewalk designs
  - Sub-grade cuts and fills
  - Any other improvements that might affect equipment placement (such as storm drains, fire hydrants, etc.)
- Locations of other utilities
- Location of any streetlights
- Plans for future development
- Load information for each lot including the expected square footage and electrical demand of the houses to be built and whether gas is available
- Location and size of any 3-Ø loads, such as wells or irrigation pumps

Trench and Backfill

All joint utility trenches must be a minimum of 42 inches deep with proper backfill and compaction, see requirements starting on page 44.

Zero Lot-line Developments

Contact Idaho Power for zero-lot line construction. While zero lot line builds may be permitted, developers are required to leave room for necessary electrical equipment, such as transformers, switches, and sectionalizing cabinets. This requires a minimum of a 10 foot easement from the back of the sidewalk as shown in Figure 60; in addition to meeting all clearance requirements for specific equipment, see Clearances starting on page 9.

Easements

The following specifications and details shall be incorporated on plat maps to ensure clearance requirements are met from electric transformers to structures, proper conduit installation, and sufficient easements are provided:

- Pad-mounted transformers require a minimum width of 10 feet from the back of the sidewalk.
- J-boxes must fit into the same easement as pad-mounted transformers.
- A side lot line width of five (5) feet is required for trenching and service cable installation.
- Maintain proper clearances to all padmounted equipment, see Clearances starting on page 9.

Figure 53 illustrates the easement and setback requirements needed to ensure adequate clearance for the safe installation of electrical facilities and other Joint Trench utility equipment. If compliance with these details cannot be met, please contact Idaho Power.

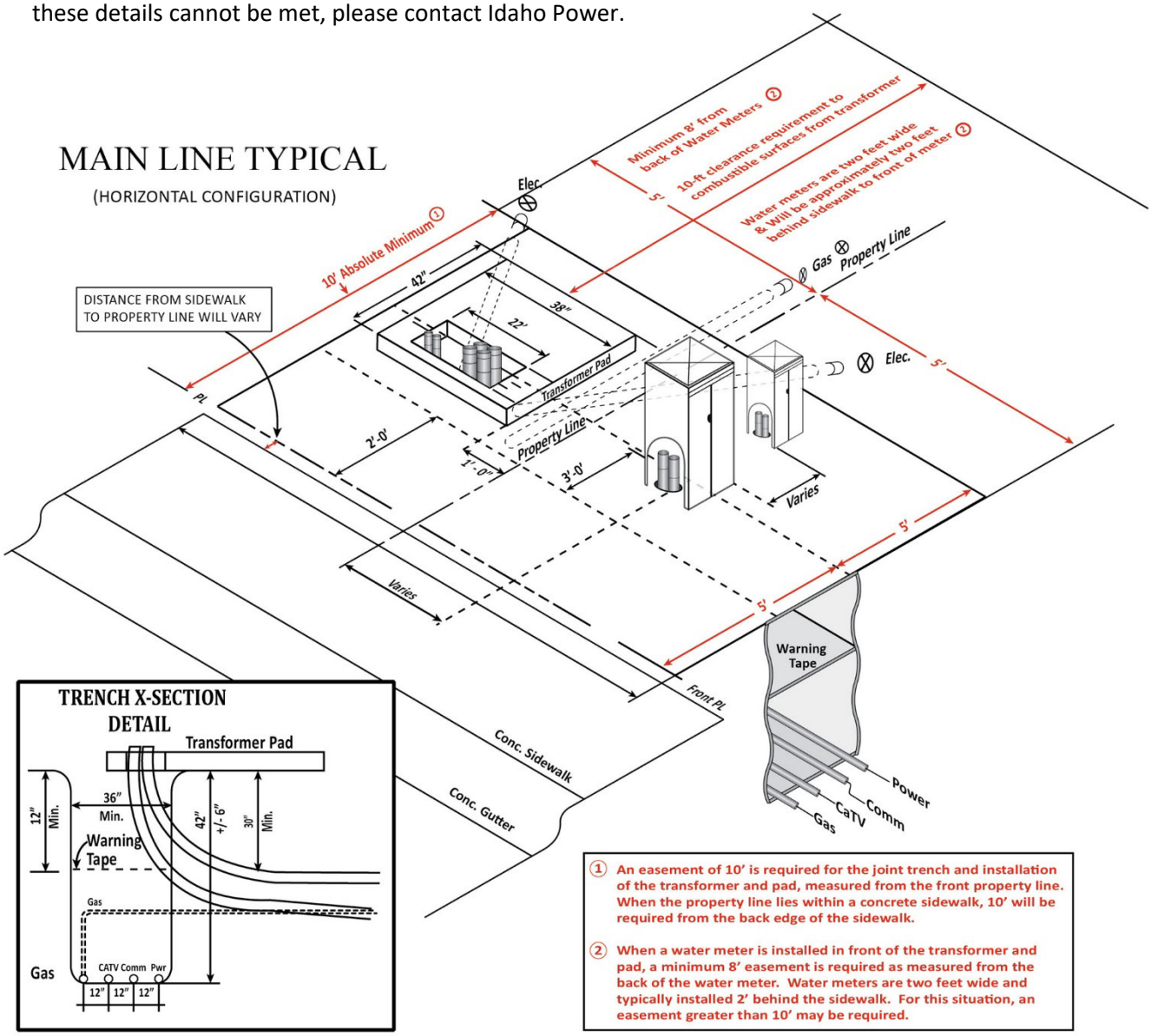


Figure 60 Joint Trench and Transformer Pad Easement Requirements

Revision History

REVISION	DATE	DESCRIPTION
0	03/15/2020	Reformatted, clarified and combined overhead and underground service requirements, definitions, changing existing service, and temporary service documents into a single document. Added additional definitions, information on site preparation and clearances, permits and inspection requirements, and trenching and conduit requirements. Recessed meter bases and tap gutters are no longer allowed. Updated residential fault current values.
1	10/01/2020	Revised CT meter enclosure requirements. Added information on self-contained meters.
2	03/15/2022	Combined Meter Identification document and supplemented with additional information on allowed meter bases. Added EUSERC references for CT metered services above 800A. Revised non-combustible wall requirements, handhole in driveway requirements. Clarified requirements for multiple meters.
3a	12/16/2022	Revised definitions. Added motor limits on self-contained meter bases. Added 24-ft minimum height for meter poles. Clarified permanent marking and energization requirements for multi-meter base equipment. Added preferred location for underground temporary service. Added point of attachment requirements for overhead services. Added requirement for expansion couplers for non-residential underground services. Removed digging restriction within 5-ft of a padmount transformer. Added wire color requirements for streetlight and sprinkler controls. Added treated wood post option for underground service not associated with a building. Added Joint Trench requirements.
4	03/17/2023	Revised definitions. Added information for Primary Service Level customers. Revised requirements for multiple meters serving multi-occupant buildings. Clarified service conductor heights. Added requirements for overhead CT service to an Idaho Power-owned pole.
5	05/26/2023	Minimum height for service poles increased to 25-ft. Added equipment load limits for residential services. Removed option for customer-owned bus duct or tap gutter for multi-meter services. Revised service wire above other buildings. Revised maximum number of conduits under transformer without basement.
6	11/29/2023	Revised definitions. Added requirements for equipment screening. Revised motor limits on self-contained meter bases. Clarified bus link requirement for switchboard metered services. Modified requirements for multiple meter bases. Added maximum depth for underground services. Expansion couplers required for underground services not associated with a building.
7	03/15/2024	Added definition of “speculative building” and “premises.” Added information on power production and energy storage. Revised multimeter service requirements. Revised secondary bus enclosure alternate construction.