Contents

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GENERAL INFORMATION

WELCOME TO CENTRAL LINCOLN

This handbook provides you with Central Lincoln People's Utility District requirements for new or altered electric service for permanent and temporary single-family residential structures. Also included in the handbook is some helpful information from the National Electrical Code (NEC) and the requirements for service to outbuildings such as barns, shops, pump-houses, garages, etc.

The handbook contains information that will help you to answer questions like:

- *How do I install a temporary meter base?*
- *How do I install a permanent meter base?*
- *Where should I install the meter base?*
- *Where will the service route be?*
- *What are the size requirements for the meter base?*
- *What do I have to do to get an underground service?*
- *How do I install my meter base?*
- *How do I get the existing underground utilities located before I dig?*

The answers to these and many other questions are here. If you have any additional questions, please call your nearest service office. You'll find a directory of these offices on page 21.

Information regarding the installation of permanent, multi-family and nonresidential services such as commercial buildings, condominium complexes, apartment buildings, and mobile home parks is available in Central Lincoln's *Electric Service Handbook for Nonresidential Services.* Both of these handbooks are available free of charge from any Central Lincoln service office.

If you have any general questions regarding billing, if you want to establish service, or if you're ready to have your service hooked up, call your local Central Lincoln office.

GETTING STARTED

Installing a temporary service and/or permanent service to your home is a joint project between you and Central Lincoln PUD. Central Lincoln is responsible for installing the service lines to bring power to your residence, and for installing the meter in your meter base.

You are responsible for:

- *The installation of your temporary and/or permanent meter base.*
- *All electrical wiring in your residence.*
- *All electrical wiring from your meter base to our point of connection.*
- *Obtaining permits and inspections.*
- *Maintaining your equipment.*
- *Keeping your meter base visible and accessible.*
- *Providing and maintaining a clear path/trench for your service line.*
- *Providing and maintaining conduit for any underground service line.*

The first thing you should do is contact our service office. Once this is done you're ready to begin. The remainder of this handbook will help you with this process.

BEGINNING YOUR CUSTOMER REQUEST FOR SERVICE

Before Central Lincoln can begin working on your project, a Customer Request For Service must be established. Please contact our nearest service office to start the request. A representative will also request billing information. There is a **processing fee** to establish a new account. This fee will be included on your first service bill.

TEMPORARY VS. PERMANENT POWER

Temporary power is generally used for the construction phase of your building project. Temporary power may be installed as either overhead or underground service (see Temporary Service Section).

All new permanent power installations will be underground. Permanent power is provided after your structure is built and meets all the requirements stated in pertinent sections. *(Central Lincoln will continue to serve existing overhead service installations. See Existing Overhead Section for details.)*

REQUESTING SERVICE

Before Central Lincoln installs your new service you must contact us and begin a *Customer Request for Service*. That request provides Central Lincoln's field personnel with the information they need to install your permanent service.

When you call to order your temporary or permanent service, a representative will ask you the following critical questions. Please be prepared to answer them, as your answers will help determine how your project is handled.

- *What is this service for (home, barn, shop, etc.)?*
- *How many square feet in your residence?*
- *Will you have electric heat or gas?*
- *Will you have a heat pump, furnace or zonal heating?*
- *Will you have gas or electric water heat?*
- *What amperage rating is required for your service?*
- *When will you be ready for service?*

INSPECTIONS AND CODES

This handbook should be used as a guide. It does not cover all possible federal, state, or local code requirements. It is your responsibility to ensure that your project complies with the most recent issue of the National Electrical Code (NEC) and any other federal, state, or local codes that may apply.

Once your service equipment is installed, the state requires that your service equipment installation pass an electrical inspection before we connect you to our system. Electrical inspections are performed by different agencies, depending on your location. See below for your local electrical inspection agency.

ELECTRICAL INSPECTION AGENCY

Area	Office	Phone#
Lincoln County	Lincoln County Planning Dept. (Electrical)	541-265-4195
Newport	Newport City Hall	541-574-0627
Lane County	Lane County Facilities Dept.	541-997-2251
Florence	Florence City Hall	541-997-8237
Douglas County	State Building Codes Division	541-684-3594
Coos County	State Building Codes Division	541-396-2148
Lakeside	Lakeside City Hall	541-759-3011
Reedsport	Reedsport City Hall	541-271-3606

CONTACTING OTHER UTILITIES

New construction typically involves the installation of water, sewer, telephone cables, cable television cables and natural gas lines, as well as power cables.

It is your responsibility to notify each of the utilities that you wish to provide service to your home. You should get the name and phone number for a contact at each utility and let each of them know which other utilities will be providing you service. Check your local phone book for their numbers.

SERVICE RATINGS AVAILABLE

Central Lincoln offers several sizes of services for single family residential structures, and for outbuildings. (See "Outbuildings" on next page.)

The size of service you need depends upon the size of your home, and the power requirements of the equipment you will be installing in it. Central Lincoln cannot determine your power requirements.

Voltage	Amp Rating	Typical Use
120/240	200 Amp*	Small and Medium sized Homes (most common)
120/240	400 Amp	Large homes
120/240	Over 400 Amps	Very large homes

** You may install a service panel or meter base that is rated less than 200 amps, but the service line and meter that Central Lincoln installs will be sized as if you were installing a 200 amp service. If you are installing an underground service that is less than 200 amps, your meter base must meet the dimensional requirements for a 200 amp underground meter base (see Meter Section for details).*

METER LOCATION

You are required to install your meter base in a place that is accessible to Central Lincoln. All locations are subject to approval by a Central Lincoln representative. If you have questions regarding meter location, call our nearest service office *(see page 21)*.

Requirements for properly locating your meter base are:

- *It must be outside.*
- *It must be located on, or within 4' of, the side of your home closest to normal public access.*
- *It must be in an area that is not likely to be fenced (such as patio, deck, porch, back yard, etc.).*
- *It must be located on a structure that is owned by you and be 5 to 6 feet above finished ground level, unless on underground pedestal. Then it must be 3-6 feet above finished ground level.*

The reasons for these requirements are:

- *So Central Lincoln's meter readers can read your meter in a safe and cost-effective manner.*
- *So Central Lincoln can efficiently maintain the meter.*
- *So employees can stay out of your back yard.*
- *If you have a fire, we can disconnect your service.*

Due to the corrosive climate along the Oregon coast, we recommend that you use a corrosion-resistant meter base that is state-approved.

For conventional homes, the meter base should be placed on the street-side exterior of the house, or a **maximum** of four feet around the corner from that wall *(See shaded area in Figure A-1)*. As an alternative, a pedestal may be placed away from the residence, such as near a street or driveway, with approval of Central Lincoln Engineering Department.

REMOVING AND INSTALLING METERS

Only authorized and qualified Central Lincoln personnel shall remove and install meters. In special circumstances, exceptions may be granted to qualified electrical contractors by contacting Central Lincoln's meter department or customer service department and receiving approval. With some types of meter bases, removal of the meter does not de-energize the customer's system.

UNDERGROUND LOCATES

If you are doing any trenching or excavation work, you are required to call for underground utility locates at least two business days before you do any digging.

You can get underground utility locates by calling the "One Call" system at **811**. Once you have called and requested a locate, the one call system will notify the utilities, or a locating service, that locates are required.

There is no charge for this service. Utilities are required by state law to belong to this service.

The state has established a color code system to identify each utility so everyone can see what has been located. The color codes are:

Color	Utility
Red	Electric
Yellow	Gas/Oil
Orange	Telephone/Cable TV
Blue	Water
Green	Sewer
White	Area to be located

The state requires that any digging within 24 inches of either side of the location markings be done by hand. **It is the customer's responsibility to preserve location markings during construction, so the locating process doesn't need to be repeated.**

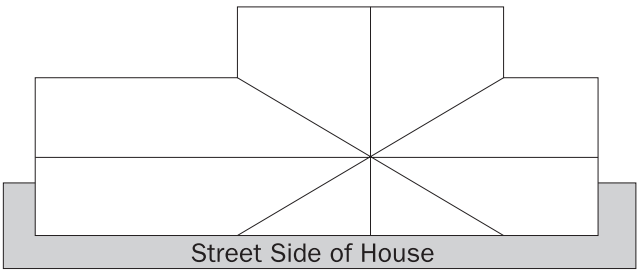


Figure A-1.
Meter location on house.

OUTBUILDINGS *(ANCILLARY SERVICE)*

An outbuilding or ancillary service is a stand-alone structure which is located on residential property and is not a living space. Typically outbuildings are barns, pump-houses, garages, shops, storage sheds, etc. Not to exceed 100 amps.

If you wish to install a separate service to your outbuilding, you are required to provide a clear path for trench and conduit for underground to our equipment as required by the NEC, NESC and Central Lincoln. If the meter base you install is for a class 320 meter, you are required to have manual bypass blocks *(see SECTION D - METER REQUIREMENTS)*.

Central Lincoln will install the underground service line to the new service hand hole *(see SECTION C - UNDERGROUND SERVICE)*.

BUILDING NEAR CENTRAL LINCOLN FACILITIES

During construction of a new residence, or any other structure, caution needs to be taken regarding existing underground or overhead powerlines and facilities.

The customer will be responsible for any damages to Central Lincoln equipment, or any encroachment on clearance requirements that requires relocation of facilities. Check with Central Lincoln before any excavation or construction to determine safe working distances.

TEMPORARY SERVICES

Where poles with transformers are adjacent to or near your project, you should request temporary overhead service *(see Figure B-1)*. If the electrical facilities in your area are underground, you will need to install a temporary underground meter pedestal to obtain temporary power. If there is power in your area but the power lines are not visible, it is likely to be underground. Refer to SECTION C for more information on underground service.

The process and cost of obtaining your temporary overhead service can vary depending upon the location of our existing facilities. The least complicated and cheapest way a service can be installed is if a transformer is located on a pole on or along your property.

If you are in an overhead area, but will have a permanent underground meter base and you want to install the conduit and trench now, refer to SECTION C. In this case your temporary underground meter base must be installed within two feet of the service hand-hole.

If you are in an underground area, you must have an underground temporary service *(see Figures B-3 and B-4)*.

Other installations are more complicated. All installations are reviewed by Central Lincoln. Please speak with one of our engineering technicians if you have any questions.

There is a **processing fee** to connect a temporary service. If any engineering is required, additional costs may be incurred.

OVERHEAD METER LOCATION

Your temporary meter post should be located on your property. Install the meter post as close as 6' *(preferred)* to the Central Lincoln pole, but no more than 100' from the pole that will serve you. The reason for this limitation is ensuring that your temporary service pole can withstand the weight of the conductor. If a distance greater than 100' is required, please contact your local service office and ask an engineering technician for approval prior to construction. A taller, stouter post with additional bracing could be required.

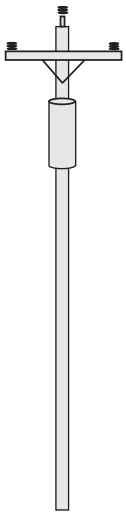


Figure B-1. Pole with transformer.

In addition to the distance limitation mentioned above, please consider the following:

- *The path that the service will take should not cross property belonging to other individuals.*
- *If the service line will pass through trees or brush, a three foot path must be cleared and maintained to allow our service personnel to access the line, and to allow the lines to hang without contacting trees or limbs. Maintaining this clear path is your responsibility.*
- *The service line path should avoid areas where vehicular traffic will occur, unless your temporary post height is increased to provide adequate clearance. See SECTION E for service line clearance requirements.*
- *Meters should face the road or driveway to facilitate drive-by readings.*

If you have any questions, please contact us.

OVERHEAD CLEARANCE REQUIREMENTS

The National Electrical Code (NEC) and the National Electrical Safety Code (NESC) have established minimum clearance requirements to maintain safe height distance for electrical conductors over various terrain.

The NEC and NESC require the lowest point of a service conductor to be at least 12 feet 6 inches above the ground. The bottom of the drip loop must be a minimum of 10 feet 6 inches above the ground *(see Figure B-2)*. **NOTE: Clearance over any driveway must be at least 18 feet.**

Figure E-2 shows the clearance requirements for the types of terrain most commonly encountered. These clearances apply to both permanent and temporary weatherheads.

It is not your responsibility to provide and install the conductor, but you are required to provide a point of attachment at your service post that will allow Central Lincoln to meet the clearance requirements.

If you need further detail, please consult the current issue of the NEC or contact the local electrical inspection agency *(see SECTION A)*.

OVERHEAD SERVICE INSTALLATION

The following items must be completed before we can energize your service:

- *Contact a Central Lincoln representative and request a temporary service.*
- *The engineer will call for an appointment at the site.*
- *Obtain an electrical work permit from the electric inspection agency (see SECTION A).*
- *Install a meter post and meter base.*
- *Obtain an electrical inspection ("green tag").*
- *After these items are completed, call our service office. Inform our representative that your installation has been inspected and passed, and state that*

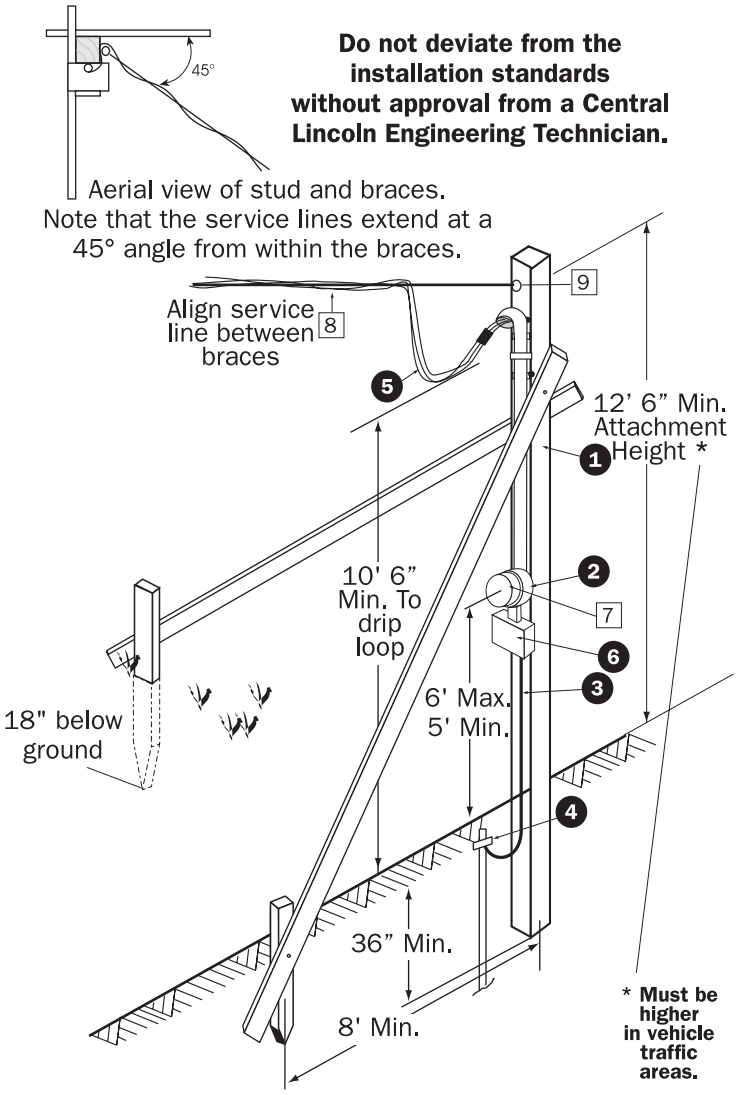


Figure B-2.
Temporary overhead service installation.

you're ready for temporary service.

Figure B-2 is a drawing of the standard temporary overhead service installation recommended by Central Lincoln. The specifications given are the minimum acceptable.

● **Items owned & installed by the customer** *(Figure B-2)*

1. *A 6" x 6" x 16' minimum, continuous, single structure, pressure treated, firmly set and drilled with an 11/16" hole 6" below top of pole in line with service drop.*
2. *Meter base with ground wire from the meter base to service neutral and an electrical permit ("green tag") attached.*
3. *Ground wire (per NEC) with ground wire connected to the meter base or switchbox lug and grounded to ground rod with approved cast clamp.*
4. *Ground rod (per NEC) 8' long.*
5. *Service entrance conductors (18" out of weatherhead for connection drops).*
6. *Switch Box with polarized receptacle for 240 V., 1 phase motors with grounding terminal. It must be a receptacle with grounding terminal that is connected to an approved grounding electrode (service conductor is not approved grounding).*

☐ **Items owned & installed by Central Lincoln** *(Figure B-2)*

7. *Meter.*
8. *Service Line.*
9. *Insulated clevis. (Minimum attachment height of 12' 6" may increase to meet clearance requirements above roads, driveways, etc. Consult your Central Lincoln engineer.)*

UNDERGROUND METER BASE LOCATION

The following items are required to properly locate your meter pedestal:

- *Set the meter pedestal on your property.*
- *Install the meter pedestal at the Central Lincoln approved meter location. You will need confirmation from a Central Lincoln engineering technician.*
- *Face meter base to vehicular traffic.*

UNDERGROUND SERVICE INSTALLATION

The following items must be completed prior to energizing your service:

- *Contact a Central Lincoln representative and request a temporary service.*
- *An engineer will call you to arrange an appointment at the site.*
- *Obtain an electrical work permit from the inspection agency (see SECTION A).*
- *Obtain underground locates (**811**).*
- *Install a meter post and meter base in the appropriate location.*
- *Provide the appropriately sized conductor from your meter base to Central Lincoln's connection point. Please leave 5 feet of extra wire at a hand-hole or locator pin, and 10 feet at a transformer pad. Consult the NEC for the appropriate wire sizes.*
- *Obtain a "green tag".*
- *Cover your wire except where our personnel will be installing and connecting your wire to ours.*
- *After these items are completed, call our service office and inform a representative that your installation has been inspected.*

UNDERGROUND METER BASE REQUIREMENTS

It is your responsibility to provide a buried cable from your meter base to our transformer or hand-hole.

The requirements to connect to an overhead converted to underground meter pedestal are shown in Figure B-3. The cable you install should be sized per the NEC and should have a minimum cover of 24".

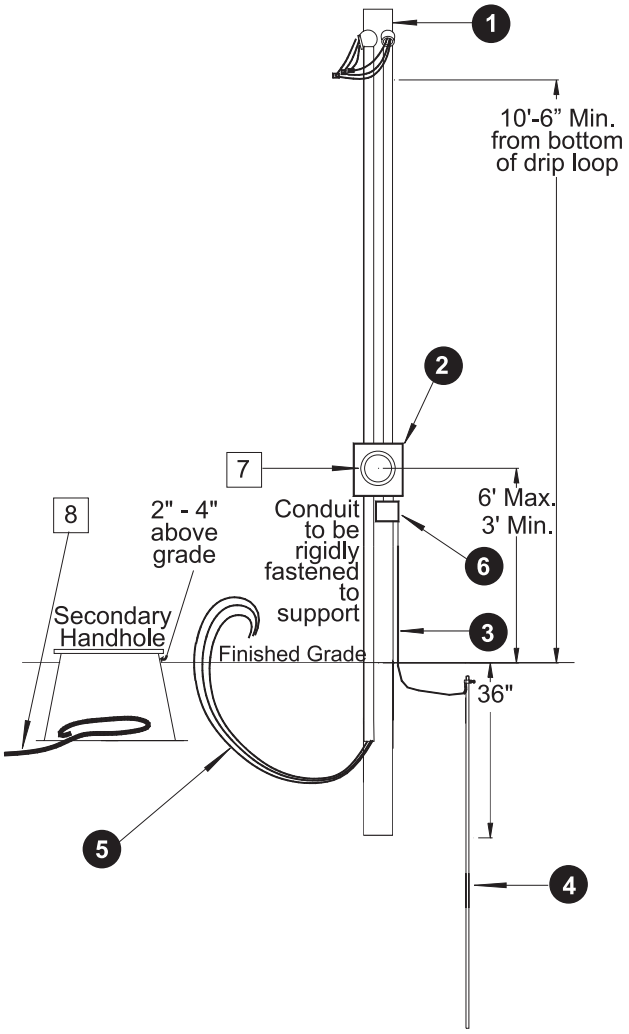


Figure B-3.
Trenching requirements for an overhead pedestal converted to underground pedestal.

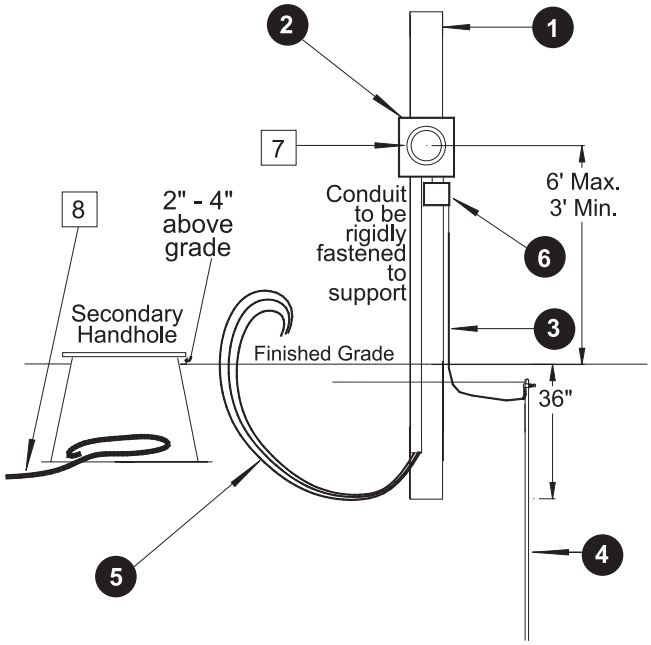


Figure B-4.
Temporary underground service installation.

*If our connection point is a hand-hole or transformer, trench to our nearest service location and leave your wires exposed. If you discover any other conductors while digging your trench, please leave them covered. Remember, **do not install conduit or elbows inside the transformer or transformer substructure** without Central Lincoln direct supervision and assistance.*

REMINDER: You are required to call the **"One Call"** system (**811**) and request buried utility locations **at least 2 business days before digging**. Any trenching within 24" of existing underground facilities must be done by hand.

Figure B-4 illustrates an underground temporary meter pedestal installation. Please note the dimensions shown. Deviations from these recommended standards could result in a delay in receiving your service and/or your service being denied. Please contact us if you have any questions.

● **Items owned/installed by the customer** *(Figs. B-3, B-4)*

1. *A 6" x 6", continuous, single structure, firmly set.*
2. *Meter base with ground wire from the meter base to service neutral and an electrical permit ("green tag").*
3. *Ground wire (per NEC) with ground wire connected to the meter base or switchbox lug and grounded to ground rod with approved cast clamp.*
4. *Ground rod (per NEC) 8' long.*
5. *Service wire - enough to reach the base of the Central Lincoln ground structure, plus 5' of wire to make connections.*
6. *Switch Box with polarized receptacle for 240 V., 1-phase motors, with grounding terminal. It must be a receptacle with grounding terminal that is connected to an approved grounding electrode (service conductor is not approved grounding).*

☐ **Items owned & installed by Central Lincoln** *(Figs. B-3, B-4)*

7. *Meter*
8. *Service Line*

UNDERGROUND SERVICE

GENERAL REQUIREMENTS

The following is a checklist, which should be used as a guide to assist you in preparing your project for the installation of your underground service. Once you have completed these items, Central Lincoln will install your service line and meter.

- *Ask us where your service line will originate. Call your nearest service office and ask to speak to an engineer (see SECTION A).*
- *Determine an acceptable location for your meter base (see SECTION A).*
- *Dig a trench and provide conduit from your meter base to the service hand-hole location, then to the location where your service will originate.*
- *Install Central Lincoln-provided service hand-hole (HH-14 or HH-20), and Central Lincoln provided pull string.*
- *Install your service equipment.*
- *Have the local electrical inspection agency (see SECTION A) approve your service installation.*
- *Call Central Lincoln's service office and notify them that you are inspected and have a "green tag" sticker on your meter base.*

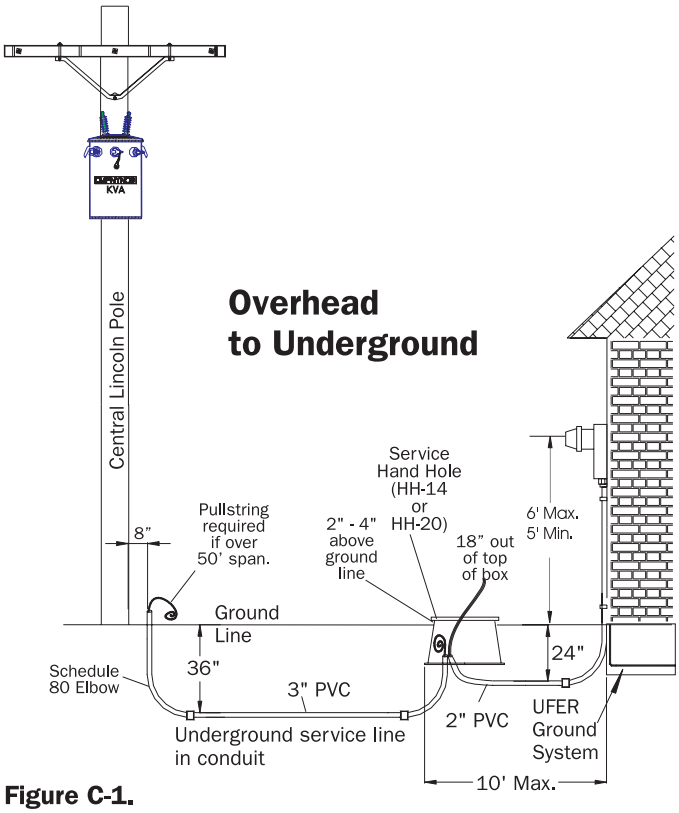


Figure C-1.
Typical overhead to underground service.

GETTING STARTED

The first step when installing a new underground service is to contact our nearest service office and ask an engineering technician where your service will originate.

Next, determine the location of your meter base. As stated previously, your meter base should be located outside and on the front, or within 4 feet of it on the side closest to normal public access (see Figure A-1).

When choosing your meter base location, be sure to consider the types of terrain where your conduit will be buried. You are required to provide, install and maintain conduit, and Central Lincoln is responsible for repairing service line if it ever fails. You must use 3" inch Schedule 40 PVC electrical grade conduit unless dictated by other ordinances and approved by Central Lincoln. You will also need a service hand-hole.

Customer-installed continuous conduit runs shall not contain more than three 90-degree elbows, or a maximum of 270 degrees of long radius bends, unless pre-approved by an engineering technician.

Conduit runs of more than 50 feet, or containing more than two 90 degree PVC elbows shall have a Central Lincoln-provided pullstring installed.

SERVICE EQUIPMENT INSTALLATION REQUIREMENTS

After you have determined the meter base location, the service line route, the size of the service you want (200 or 400 amp), you are ready to begin installing your service

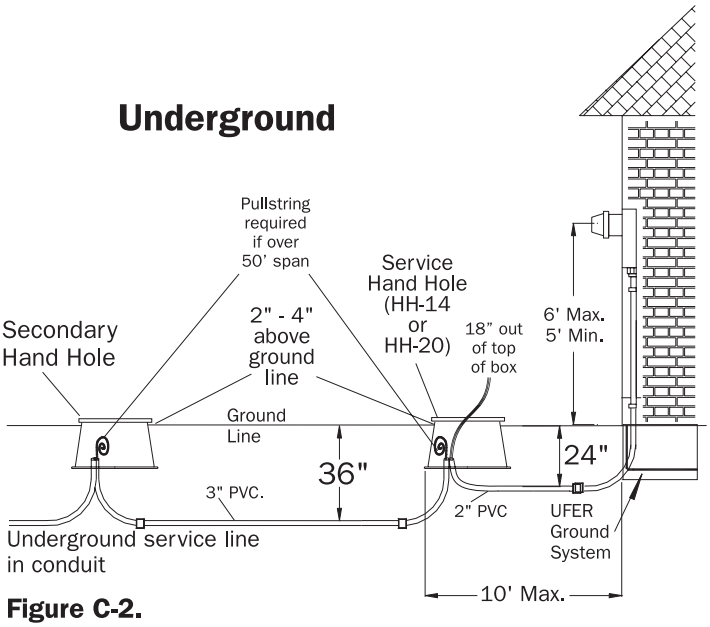


Figure C-2.
Typical underground service.

equipment.

There are three ways this equipment can be installed:

Flush mounted *(see Figure C-4)*

Surface mounted *(see Figure C-5)*

Pedestal mounted *(see Figures C-6 & C-7)*

When installing your service equipment, make sure that you install your meter base so that the center of the meter will be between 5 and 6 feet above finished grade.

TRENCHING REQUIREMENTS

You are to provide a trench, 24 inches deep, from your meter base to the service hand-hole *(HH-14 or HH-20)*. Your trench will then continue, at 36 inches deep, to the pole, transformer, or secondary hand-hole where your service will originate. The trench must have a level, flat bottom, void of shifting soil. The trench must be free of all sharp rock and construction debris. There must be at least 12 inches of separation from all other utilities within the trench *(see Figure C-3)*. The trench must be a minimum of 3 feet from sewer and gas, 5 feet from septic tanks and 10 feet from any drain fields.

When trenching to a transformer, or any energized structures, don't use any digging equipment other than a hand shovel within 5 feet of transformer. **NOTE:** For underground service installations, don't dig or install any conduit or wire into an existing Central Lincoln vault without assistance from a qualified Central Lincoln employee. *(Access to Central Lincoln equipment by persons other than Central Lincoln employees is prohibited.)* Remember, **do not dig under the transformer.**

Also remember:

Call before you dig: **811** ***(see SECTION A)***.

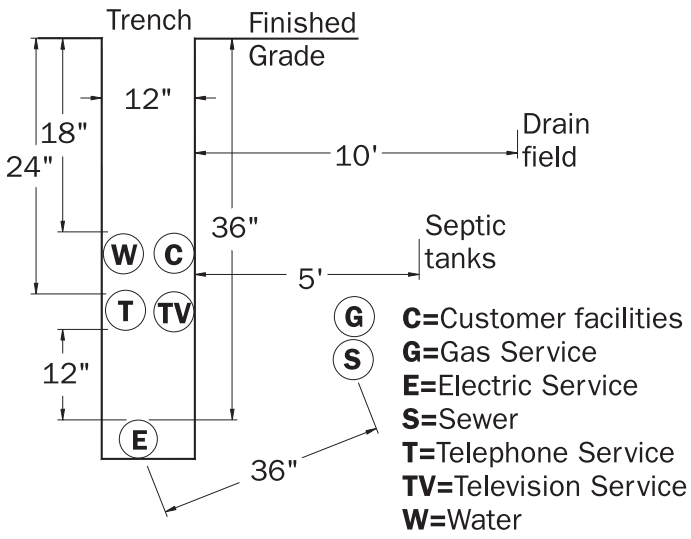


Figure C-3.
Service line trench detail.

CONDUIT

Customer will provide conduit and conduit elbows from the meter base to the service hand-hole *(generally 2" - see NEC)*. Continue with a second set of 3" conduit and conduit elbows from the service hand-hole to the Central Lincoln source (pole, transformer or secondary hand-hole). The conduit will be Schedule 40 PVC electrical grade unless otherwise required by the engineering technician, road right-of-way administrator, or electrical inspector *(see Figures C-1, C-2)*.

You are required to keep the conduit clean and clear of debris and water. End plugs will be provided by Central Lincoln, and you are required to have these installed.

Do not install conduit into energized equipment such as a transformer or an energized hand-hole.

At a transformer, or energized hand-hole location, you will need to call our service office to coordinate our being at the site to assist you in installing the elbow, pullstring and backfill.

You will need to install all conduit, pullstring, service hand-hole, trenching and backfill from the meter base to the Central Lincoln source *(pole, transformer, secondary hand-hole)*.

SERVICE HAND-HOLE

You'll need to pick up and transport a service hand-hole from Central Lincoln to your site. *(Ask engineering technician for details.)* If your service is a 200 amp single meter base installation you can pick up the HH-14 at your local service office.

If you have a bigger meter base, or more than one meter, you'll need to pick up a larger service hand-hole from your local Central Lincoln warehouse. Ask your engineering technician for warehouse location and hours of service.

It is your responsibility to install the service hand-hole in your trench (see Figures C-1, C-2 & C-8), within 10 feet of the meter base. The lid portion of the service hand-hole must be above the finished grade.

Two conduit elbows are required inside the service hand-hole *(one from the meter and one from the pole, transformer or secondary hand-hole)*. The two elbows are to be 2" above the bottom of the dirt floor of the hand-hole, and centered in the short side of the hand-hole *(see the Top View in Figures C-4- C-5 & C-8)*.

Do not install the service hand-hole in a concrete area unless you receive prior instruction from an engineering technician. If the service hand-hole fills with water, you are required to provide adequate drainage, possibly excavating a larger area and underlying the service hand-hole with gravel.

Central Lincoln crews must have easy access to the hand-hole cover at all times. Hand-hole must not be covered with pavement, deck, landscaping, etc.

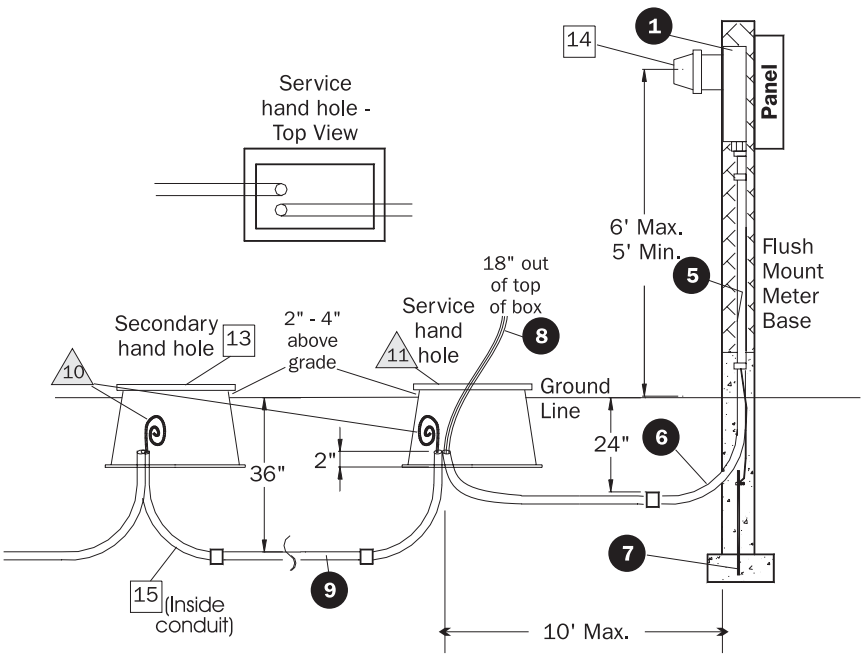


Figure C-4.
Flush-mounted meter base with Central Lincoln secondary hand hole.

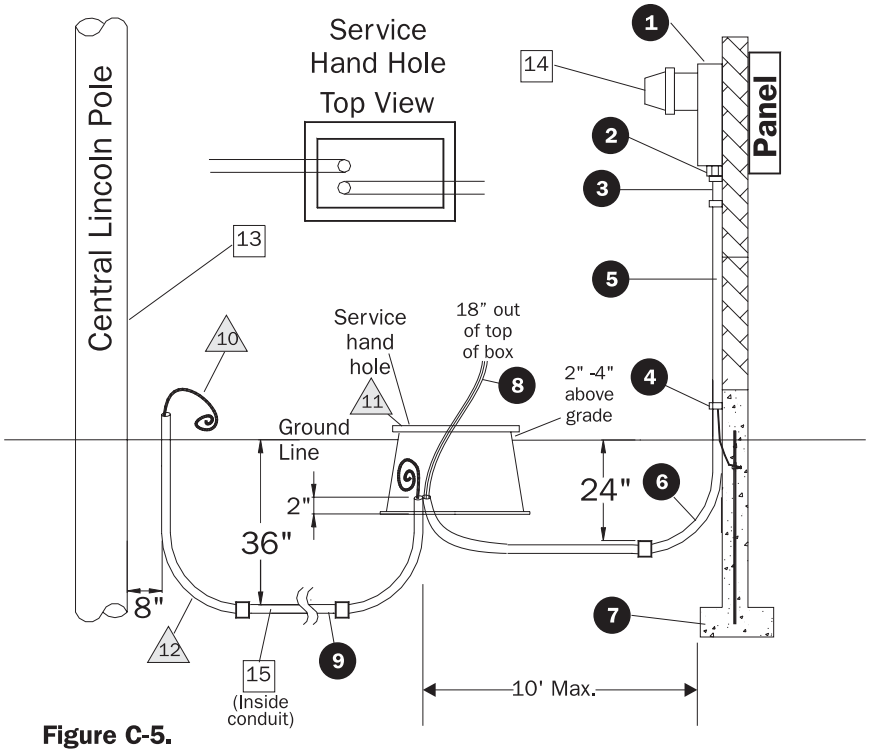


Figure C-5.
Surface-mounted meter base with Central Lincoln pole.

PULLSTRING

Pull string is to be blown in after the sections of the conduit have been glued and the glue has properly dried. Make sure the pull string does not get glued to the conduit. You will not be required to install pull string unless your trench is over 50 feet long, or has more than 180 degrees in elbows.

BACKFILL

After you have installed the trench, conduit, service hand-hole and pullstring, you're ready to call your service office for a trench inspection. You may use the original trench material for backfill, after the inspection, if it is clean (does not contain rock, construction debris, etc). Otherwise, sand is the preferred backfill.

FINAL INSPECTION

All Central Lincoln underground box and duct systems done by customers, contractors or builders will require a final inspection and approval by a Central Lincoln Operations Department inspector. The Central Lincoln inspector must approve all jobs requiring trenching before the Central Lincoln service or line crew can be dispatched to do the electrical installation.

● **Items owned and <u>installed by customer</u>**
(Figs. C-4 & C-5)

1. *Meter base.*
2. *Insulating bushing and lock nut.*
3. *Terminal adapter.*
4. *Conduit strap.*
5. *Service entrance conduit as specified by NEC or local electrical inspector.*
6. *90° elbow.*
7. *UFER grounding installation in accordance with NEC.*
8. *Customer's service wire - 18" out of top of box.*
9. *3" Schedule 40 PVC conduit, couplings and 36" minimum radius elbows.*

△ **Items owned by Central Lincoln and <u>installed by customer</u>** *(Figures C-4 & C-5)*

10. *Pullstring.*
11. *Service hand-hole (HH-14 or HH-20) to be installed within 10' of meter base.*
12. *3" Schedule 80 PVC, 36" minimum radius elbow.*

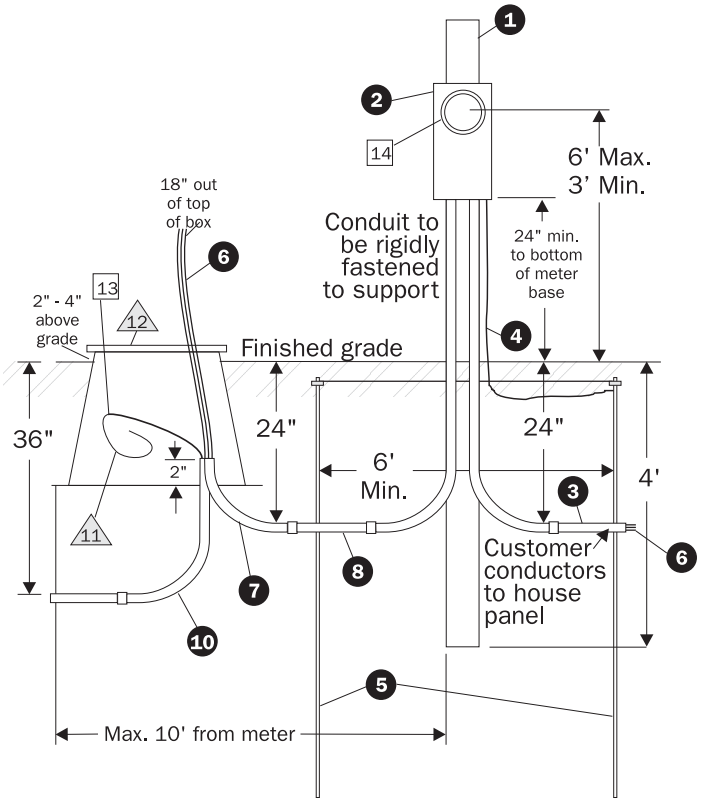


Figure C-6.
Custom built meter pedestal.

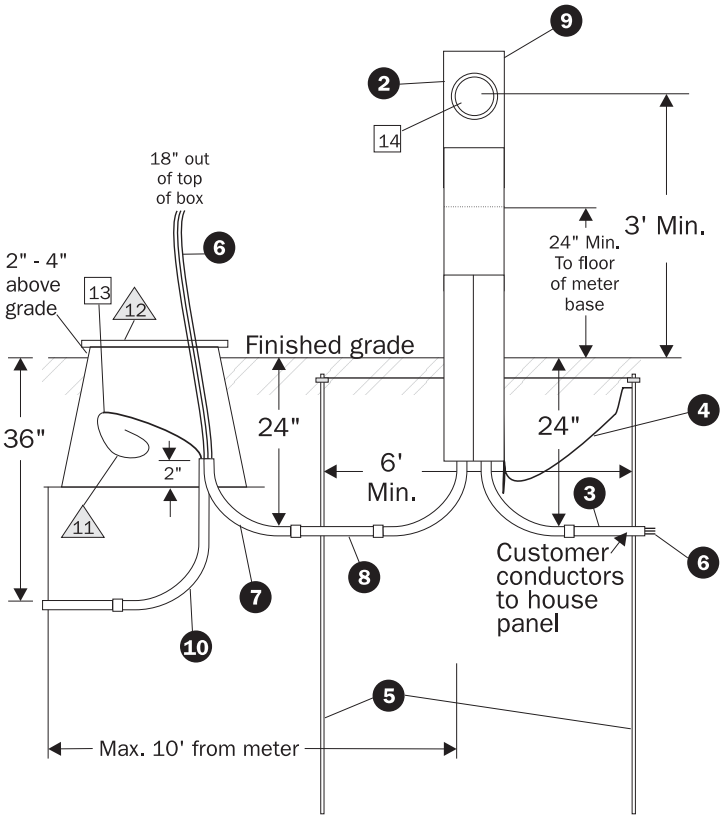


Figure C-7.
Factory built meter pedestal.

☐ **Items owned & installed by Central Lincoln** *(Figures C-4 & C-5)*

13. *Secondary hand-hole, or pole.*
14. *Meter.*
15. *Service wire (inside conduit).*

MANUFACTURED HOMES

If you are installing an underground service to your manufactured home, your service equipment can be installed in one of two ways:

1. *On a customer-owned meter pedestal.*
2. *On the manufacturer installed home, if the following conditions are met:*
   - Manufacturer installed the service equipment at time your home was built.
   - Or the service equipment meets the meter base requirements listed below.

A meter base installed on manufactured homes must:

- *Be located on an outside wall of your home.*
- *Be located on the front or within 4 feet of your home closest to normal public access.*
- *Be between 5 and 6 feet above finished grade, unless it is a pedestal (then 3' - 4' above finished grade).*
- *Not be in a walkway, breezeway or carport*
- *Not be in an area that is being fenced, or where decking or foliage will block easy access to it.*
- *Meet Central Lincoln's size requirements (see SECTION D).*

METER PEDESTALS

A meter pedestal is a structure that supports your service equipment. If a meter pedestal is required for your project, it is your responsibility to purchase and install it.

The NEC requires that manufactured homes have a disconnect switch installed within 30 feet of the home on the side of the home facing normal public access. Normally, your meter base is installed at the same location.

You have two meter pedestal options:

1. ***Custom built-*** *a pedestal that you or your electrical contractor builds. See Figure C-6.*
2. ***Factory built-*** *a pedestal you buy. See Figure C-7.*

● **Items owned and <u>installed by customer</u>** *(Figs. C-6, C-7)*

1. *6 in. x 6 in. x 8 feet min. fully pressure treated post.*
2. *Service entrance equipment.*
3. *Service conduit as specified.*
4. *Ground wire (in accordance with NEC).*
5. *Ground Rods (in accordance with NEC; 2 required).*
6. *Customer conductors - 18" out of box.*
7. *Elbows, 2-90° PVC conduit with 24" min. radius.*

8. *Schedule 40 (minimum) PVC electric conduit.*
9. *Factory-built meter pedestal.*
10. *3" Schedule 40 PVC conduit, couplings and 36" minimum radius elbows.*

△ **Items owned by Central Lincoln & <u>installed by customer</u>** *(Figs. C-6 & C-7)*

11. *Pullstring.*
12. *Service Hand-hole (HH-14 or HH-20).*

☐ **Items owned and installed by Central Lincoln** *(Figs. C-6 & C-7)*

13. *Service line.*
14. *Meter.*

EXISTING DIRECT-BURIED UNDERGROUND

In the past, some underground service lines were direct-buried in the ground, rather than placed in conduit. These old systems are prone to periodic failures, which is why we no longer allow this type of installation.

However, Central Lincoln will find and repair damage to your existing direct-buried underground service, and we will continue to do so as necessary at no cost to the customer. These direct-buried failures cause outages that are frustrating for the customer and expensive for Central Lincoln to repair, so we encourage customers with direct-buried service to upgrade to conduit-based systems.

Normally, a customer installing new underground service must provide all the conduit necessary for the installation. But as an incentive to upgrade, Central Lincoln will provide the necessary wire, conduit, 90 degree ells, HH-14 hand-hole, and pull string from our point of service to the hand-hole near your existing meter base. The customer is still required to provide any trenching necessary.

If you're interested in upgrading from a direct-buried system, please contact Central Lincoln before doing any of the work. A Customer Engineering Representative will meet with you to determine the proper route for any conduit installation before you dig. And an inspection is necessary of all conduit and substructure installation before trenches are back-filled.

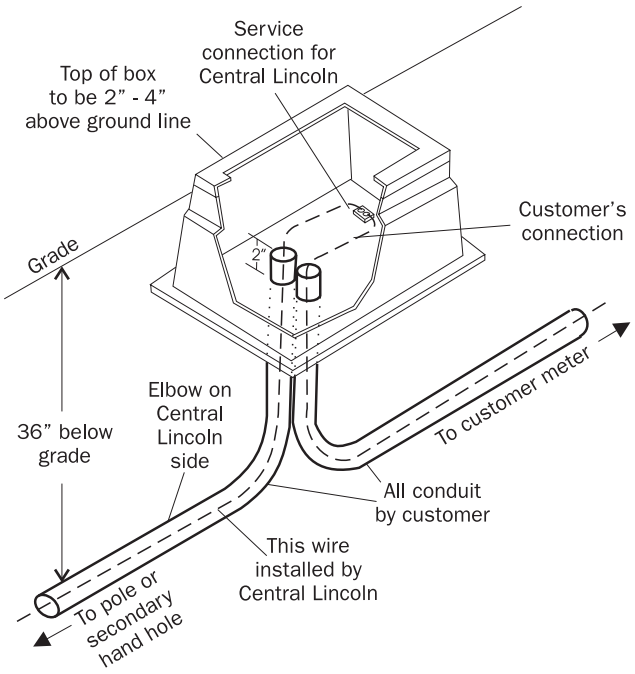


Figure C-8.
Installation of service hand hole (HH-14 or HH-20)

METER REQUIREMENTS

GENERAL REQUIREMENTS

This chapter provides you with general requirements for the metering equipment that you need in order to have your service energized. Your meter base needs to meet the following criteria for our meter to properly connect.

No meter base will be energized until our crews can see that the inside breaker box has a permanent metal cover installed and secured. (This may be waived if there is an external main disconnect switch installled.)

Your meter base and other equipment installation must meet the requirements of your local electrical inspector. If you have specific questions regarding your meter installation please contact your local electric inspection agency *(see page 4)*.

Meter bases may not be covered by any stucture, unless it can be moved without the use of tools to allow full access to the meter.

SERVICE RATING OPTIONS

As stated in Section A, Central Lincoln's metering equipment requirements for single-family residential structures *(not apartments or condominiums)* are based upon the following single-phase service ratings *[and the customer must select which amperage rating is required for the project]*:

Ampere Rating	Voltage
200 Amp	120/240
400 Amp	120/240
over 400 Amps*	120/240

** If you need a service over 400 amps or a three phase service, please contact your nearest service office (see page 21). Those services will be addressed individually and are not covered in this handbook.*

You are responsible for providing and installing all equipment other than:

- *The meter.*
- *The service line from Central Lincoln's facilitates to the point of attachment.*

METER BASE REQUIREMENTS

The meter base you purchase and install must meet the following general requirements. *(Specific requirements for 200 and 400 amp services, and for outbuildings, are listed later in this chapter.)*

Your meter base must be:

- *UL (Underwriters Laboratory) approved.*
- *Rated for exterior use, and be rain-tight according to NEMA-3R.*
- *Must have all unused openings tightly sealed from the inside of the base.*
- *Must be plumb and securely fastened to the supporting structure.*

200 AMP SERVICES

The 120/240 volt, 200 ampere service is the most common service installed by Central Lincoln. Typically it's installed in homes with a living area of less than 2500 square feet. However, depending upon what type of equipment you are installing you may want a larger service. It is your responsibility to determine your electrical requirements and to notify Central Lincoln of the size of service you would like.

Meter bases for 200 amp services shall also:

- *Be rated for 120/240 volts and 200 amps.*
- *Contain four meter- jaws and one connection point for the neutral conductor.*
- *Be at least 4-1/4 inches deep, 11 inches wide, and 14 inches high (see Figures D-2 and D-3).*
- *Accept 2 inch PVC (preferred) or 2 ½ inch rigid steel conduit.*
- *Have lugs (electrical connectors) that are marked to accept 4/0 aluminum conductors.*

The center knockout should not be used on underground because of the bending radius of the cable.

If your outbuilding or ancillary service will be used for commercial purposes (i.e. a professional shop, dairy barn, illuminated sign, multifamily/community well) you will have additional requirements. If this is the case please refer to the *Central Lincoln Electric Service Handbook for Non-Residential Services.*

GROUNDING REQUIREMENTS

All meter bases and conduit shall be bonded and grounded in accordance with the NEC. New construction shall have a "UFER" ground installation poured in the footings and be inspected by the building official. It is your responsibility to coordinate this installation with the proper authorities and receive their approval.

CLEARANCE REQUIREMENTS

The following clearances are required around all meter installations. It is your responsibility to provide and maintain these clearances.

- *The center of the meter shall be between 5 and 6 feet above finished grade (except meter pedestals).*
- *If a recessed meter base is installed, a clearance of 18 inches is required from the meter center to the closest portion of the wall (see Figure D-1).*
- *If a flush or recessed meter base is installed, the*

siding or finished surface of the structure shall not overlap the cover of the meter base.

- *A minimum working space of 36 inches wide by 36 inches deep is required around the meter (see Figure D-5). This working space is to be kept clear of any obstructions including landscaping.*
- *There shall be a minimum horizontal clearance of 36 inches between the center of the electric meter and gas meters (see Figure D-7).*
- *Recessed meter base will not be recessed more than 6 inches.*

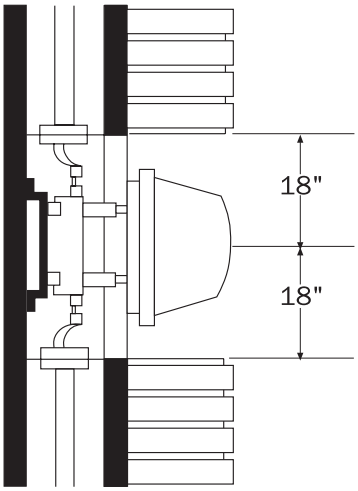


Figure D-1.
Recessed meter base installation showing minimum clearance.

400 AMP SERVICES

The meter base required for a 120/240 volt, 400 ampere service is a "Class 320" meter base *(see Figure D-4)*. It is larger than the 200 amp meter base, but it is still a self-contained meter base *(it doesn't require instrument transformers).* It can be installed on residences where the continuous current rating is 320 amps or less. If your structure will require more than 320 amps continuous, you are required to install an instrument transformer *(CT or PT)* service.

Class 320 meter bases for 400 amp services shall, in addition to the meter base requirements listed on page D1;

- *Be rated for 120/240 volts and 320 amps continuous.*
- *Contain four meter-jaws and one connection point for the neutral conductor.*
- *Contain a Class 320 manual bypass (see Figure D-4).*
- *For underground meter bases we recommend:*
  - 3 inch schedule 40 or 80 PVC or steel conduit through a knockout in the bottom left corner of the enclosure.
  - Have a least 8-1/2 inches of clearance between the bottom of the lugs and bottom of the enclosure *(see Figure D-4).*
- All meter bases will be unenergized until the inside breaker box has a ***permanent metal cover*** installed. Central Lincoln crews must be able to see that the breaker box cover is installed and secure.

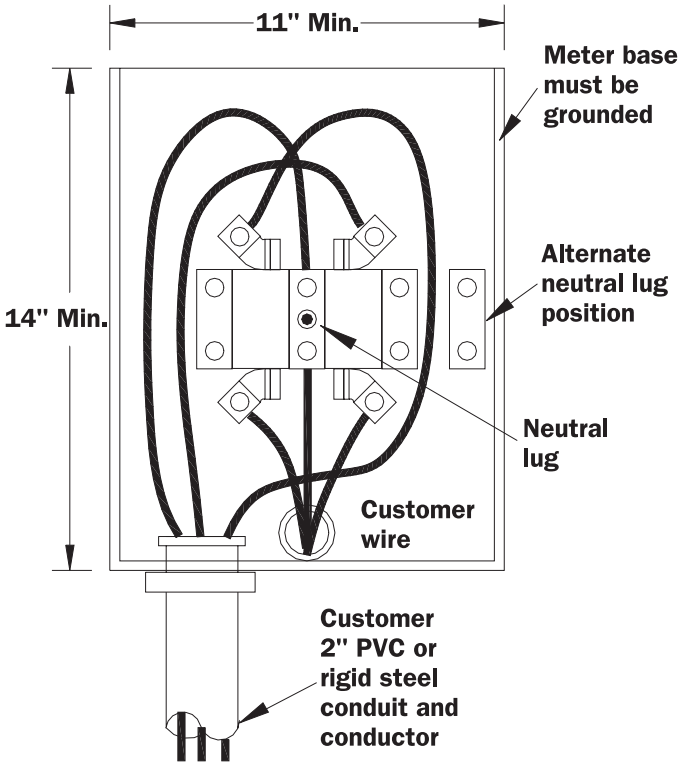


Figure D-2.
200 Amp underground meter base.

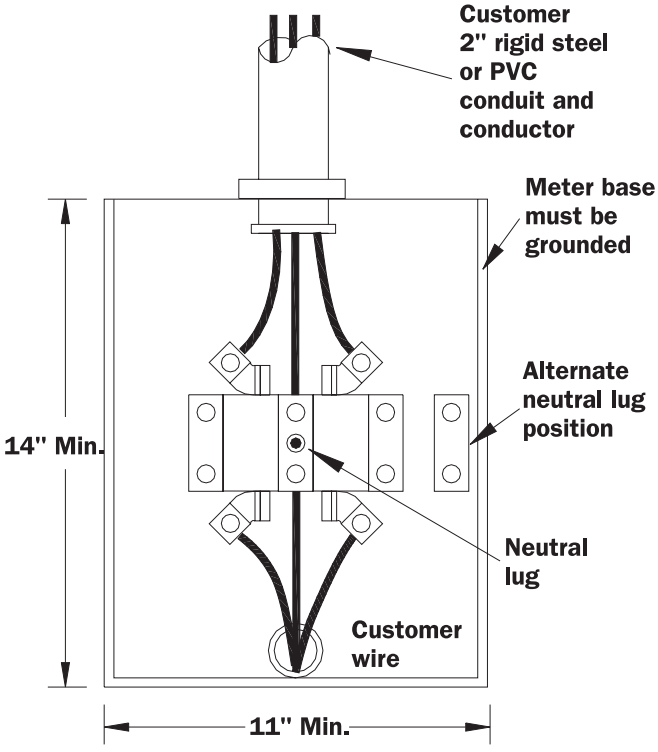


Figure D-3.
200 Amp overhead meter base.

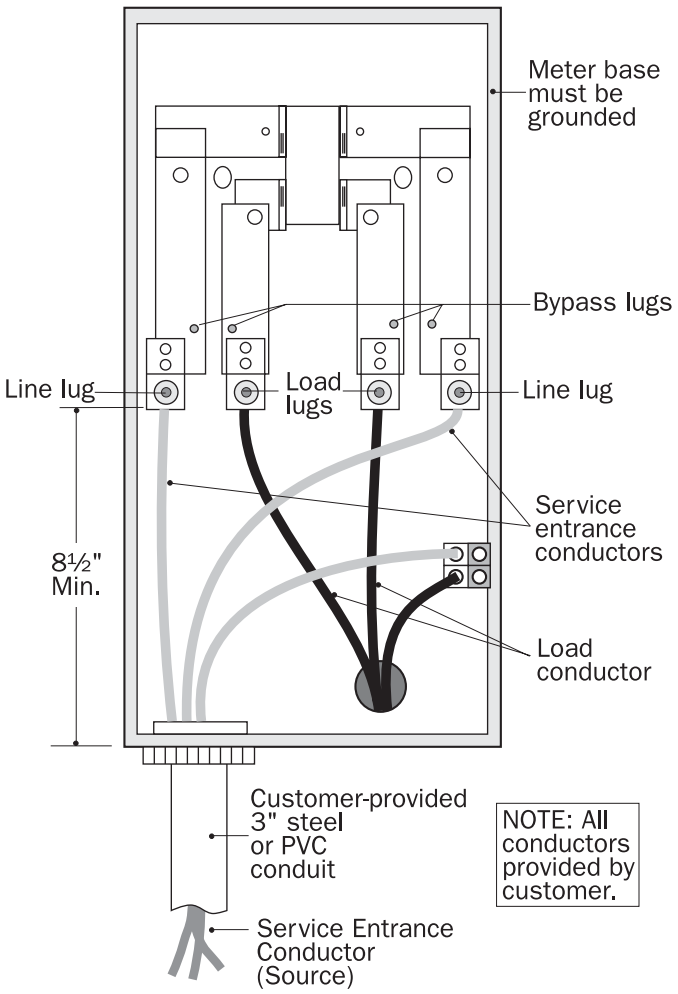


Figure D-4.
Typical Class 320 meter base with bypass lugs.

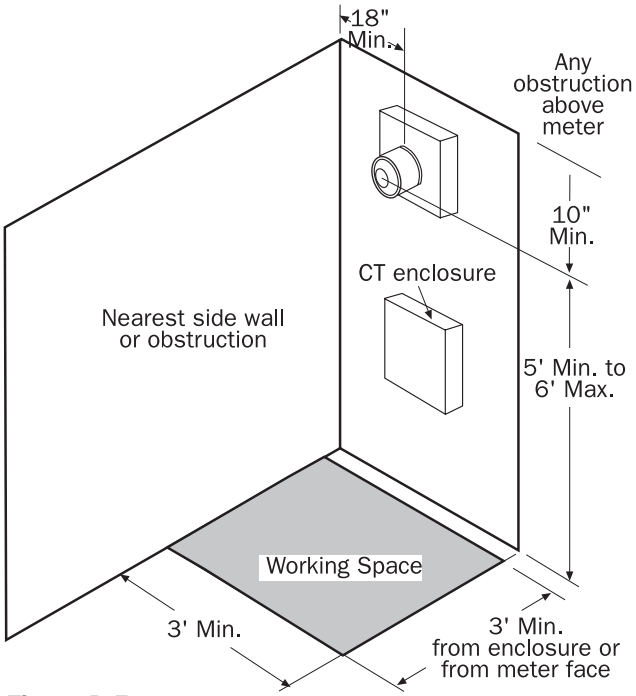


Figure D-5.
Meter base minimum clearance.

400 AMP CT SERVICE

CT services are also known as "instrument transformers". You may request a 120/240 volt, 400 amp CT service, available at an additional charge. This service requires a different meter base (see Figure D-6). It also requires additional equipment (CT enclosure, conduit, CT mounting bracket, etc.). Contact our nearest service office (see page 21) and ask to speak to the meter department.

Phase	Service Amperage	CT's No. of Transf.	Dimensions W	H	D
1	401-800A	2	24"	24"	11"'
3	201-400A	3	36"	36"	11"

SERVICES OVER 400 AMPS

120/240 volt services over 400 amps require CT metering. Please contact your nearest service office and ask to speak to the meter department for more information.

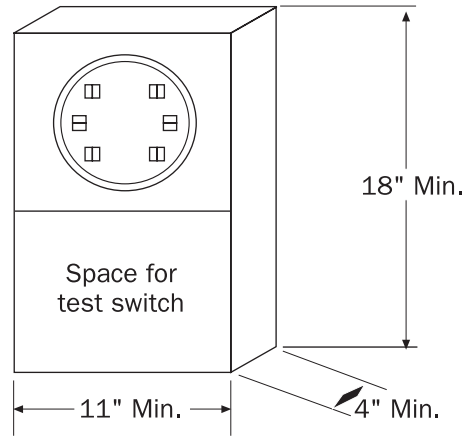


Figure D-6.
120/240 Volt single-phase CT meter

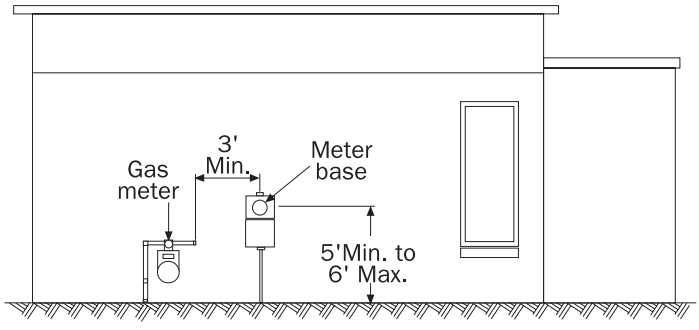


Figure D-7.
Meter base height and gas meter clearances.

EXISTING OVERHEAD SERVICE

GENERAL REQUIREMENTS

If you wish to continue having overhead service to your home, the information in this chapter will help you.

The following is a checklist that will assist you in preparing your project for the replacement of your existing overhead service. After you have completed these items, Central Lincoln will replace your service line and meter *(see Figure E-1)*. The following items must be completed before Central Lincoln will install your replacement service line:

- *Check to see if there are any local ordinances/ covenants that prevent you from replacing an overhead service.*
- *Contact Central Lincoln (see SECTION A - "Requesting service").*
- *Determine an acceptable location for your meter base (see SECTION A).*
- *Provide a clear path from that pole to your service mast, including tree trimming.*
- *Install your replacement service equipment.*
- *Install your replacement service entrance conductors (leave 18 inches exposed at the weatherhead).*
- *Verify that your service mast height requirements have been met.*
- *Have the local electrical inspection agency (see SECTION A) approve your installation.*

GETTING STARTED

After you have completed your Customer Request For Replacement Service, Central Lincoln will contact you to arrange an appointment at the site. At this time the location for the meter base and service line will be determined.

Again, your meter base should be located outside, and within 4 feet of the front of your structure closest to normal public access and the pole *(see SECTION A, Figure A-1)*.

Another factor to consider when choosing the meter base location is what types of terrain the line will be crossing. Central Lincoln suggests that whenever possible you avoid service line routes that will cross your driveway. Service lines crossing driveways can be hit by vehicles and cause damage to your service equipment and even your home.

If your service line will be passing through any trees, you are required to prune those trees to provide a 3 foot minimum clearance **on all sides** of the service line. Your are also responsible for regular tree pruning, and if necessary, tree removal to keep the path clear.

CONVERTING OVERHEAD TO UNDERGROUND/RELOCATING METER

Central Lincoln will no longer attach electrical service to a customer-owned overhead meter pole. If a customer is replacing an existing overhead service, and is willing to convert to an underground system, we will provide (if required) one Central Lincoln-owned clearance pole, service riser, service wire, and in-ground junction box (see Figure E-8 for installation details) at no cost to customer. The same holds true if a customer is willing to relocate a meter to a location more convenient for Central Lincoln.

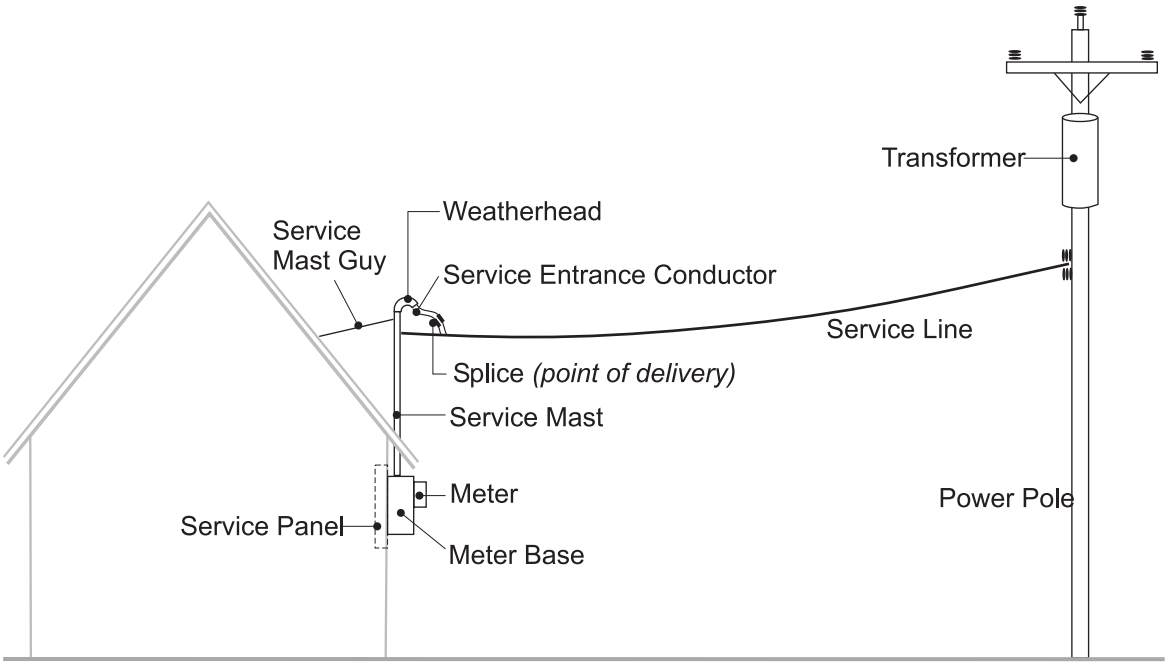


Figure E-1.
Typical overhead service installation.

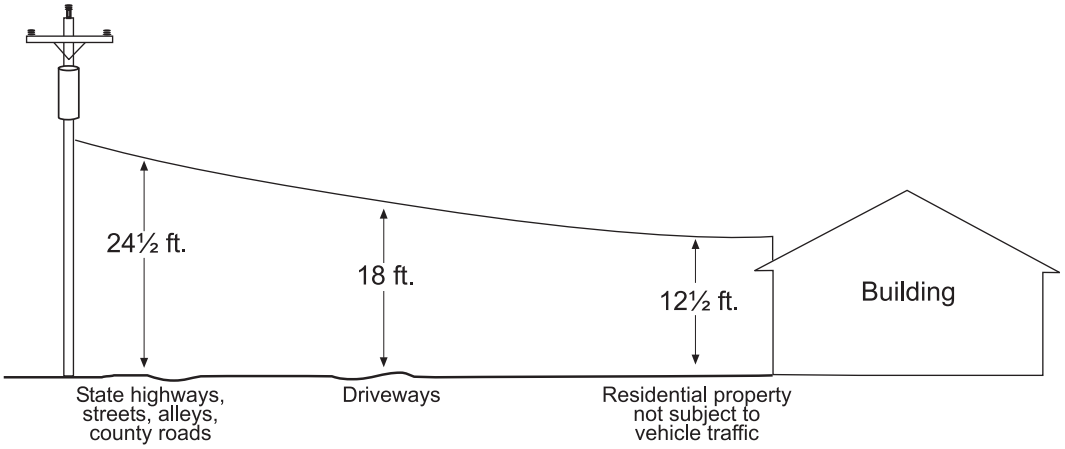


Figure E-2.
Minimum clearances from ground.

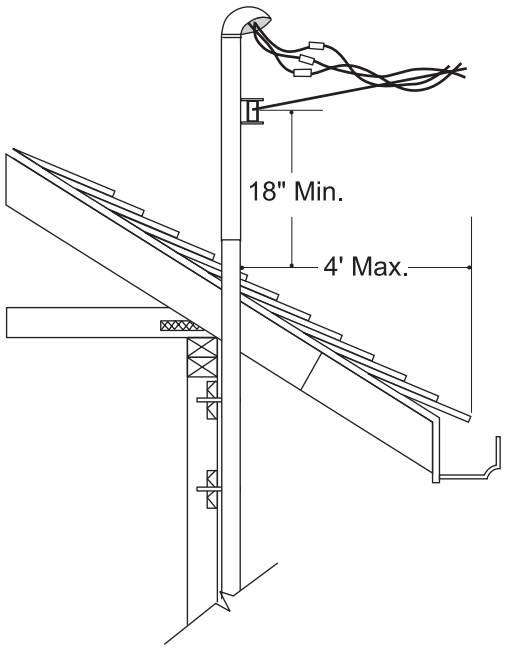


Figure E-3.
Service mast clearance option. Contact your local electrical inspection agency.

SERVICE MAST REQUIREMENTS

A service mast is a conduit that runs vertically from the top of your meter base up through your roof. It contains your service entrance conductors and typically supports one end of your service line. Service masts are necessary when installing an overhead service and are installed by you or your electrical contractor.

The requirements for the installation of your service mast are located in the NEC. Some of the more common methods are included in this section for your information.

Height requirements

The top of your service mast must be a least 13 feet above final grade so that the minimum clearances over your property can be maintained. Additional height may be required depending upon the location and type of structure or terrain which your service line passes over. Figure E-2 illustrates some of the minimum clearances that must be maintained.

The NEC and Central Lincoln also require that your service mast maintain minimum clearances above your roof. The clearance required depends upon the slope of your roof, and whether or not your service line is attached to the structure.

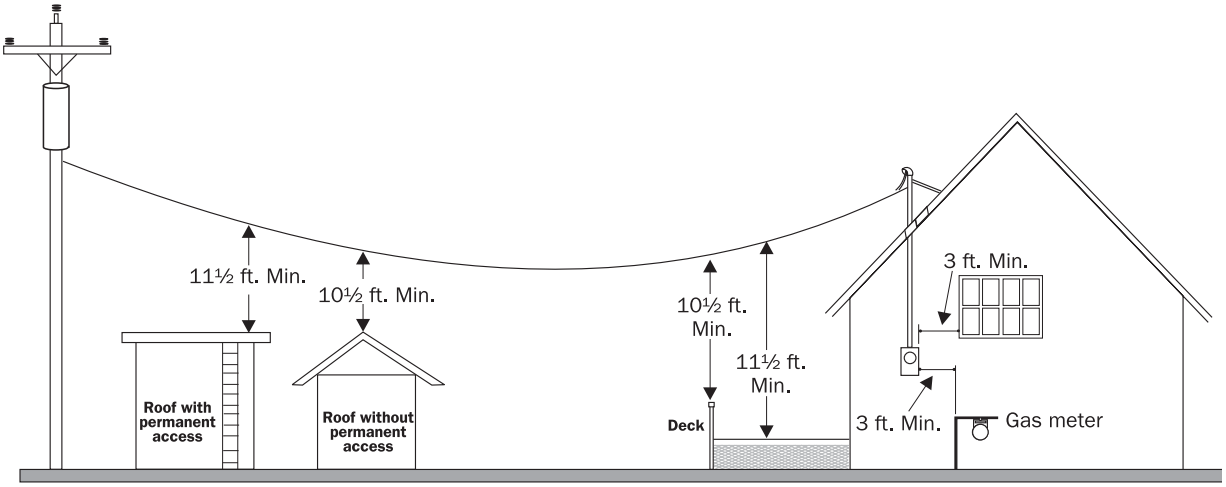


Figure E-4.
Minimum vertical clearances over other structures.

Figure E-3 is one example of a service mast installation with the service line attached to the mast. This is the method preferred by Central Lincoln. For other options and details, consult the NEC.

Service lines passing over the roof of another structure must meet the clearances shown on Figure E-4.

Central Lincoln can assist you in determining your proper mast height. Call our nearest service office, and ask to speak to an engineering technician.

Clearances from buildings, openings, gas

A minimum clearance of 3 feet is required between service lines and windows, doors, porches, fire escapes, or similar openings.

A minimum horizontal clearance of 3 feet is required between electric service equipment and natural gas metering equipment (see Figure E-4).

Additional mast supports

Additional mast supports, typically a guy or brace, are required for any service line that is over 50 feet in length. Guy and braces are installed to prevent the weight of the service line from pulling your service mast away from your home. Further information regarding guying and bracing service masts is available in the NEC.

Additional mast supports are required when:

- *You have a 400-amp or larger meter base.*
- *Your service line is over 50 feet long.*
- *The top of your service mast is more than 26 inches above your roof.*

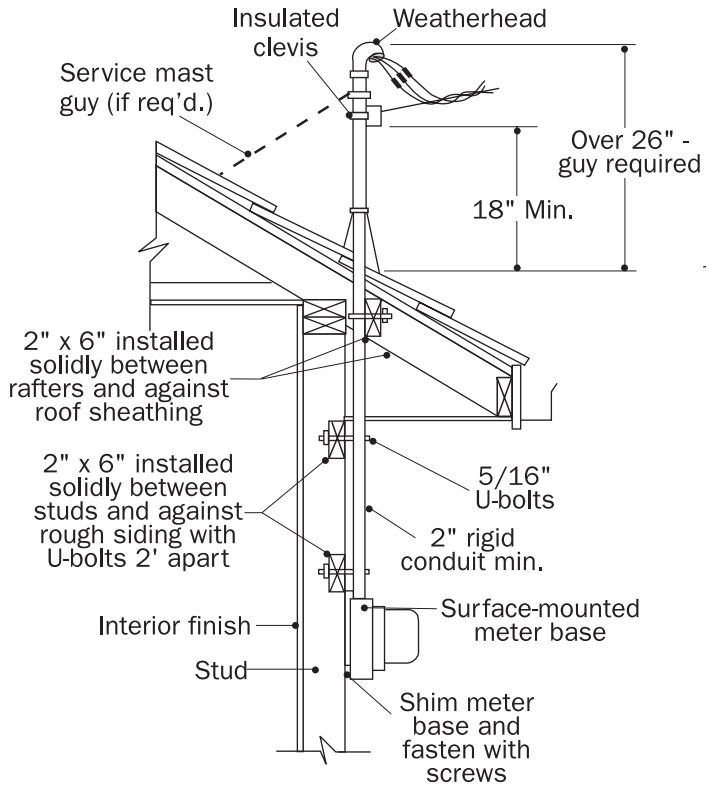


Figure E-5.
Surface-mounted meter base.

See Figure E-5 for an example of a service mast guy.

SERVICE EQUIPMENT INSTALLATION REQUIREMENTS

After you have determined the meter base location, the service route, the height of your service mast, and the size of your service equipment (200 amp, 400 amp, etc.), you are ready to begin installing your service equipment.

There are two ways this equipment can be installed:

- *Surface mounted (see Figure E-5)*
- *Flush mounted (see Figure E-6)*

Once you have installed your meter base and mast you are ready to provide and install your service entrance conductor. The service entrance conductor is the wire that is connected to the top lugs in your meter base and runs upwards through the service mast. The service entrance conductors must be sized according to the NEC and to the rating of your meter base. When installing the wire, leave at least 18 inches of it exposed at the end of the weatherhead to allow Central Lincoln to connect your service line to it. When you install your meter base make sure the center of the meter will be between 5 and 6 feet above finished ground level.

If you have any questions regarding the installation of your service equipment we suggest that you consult the NEC, call the inspecting agency for your area, or contact an electrical contractor.

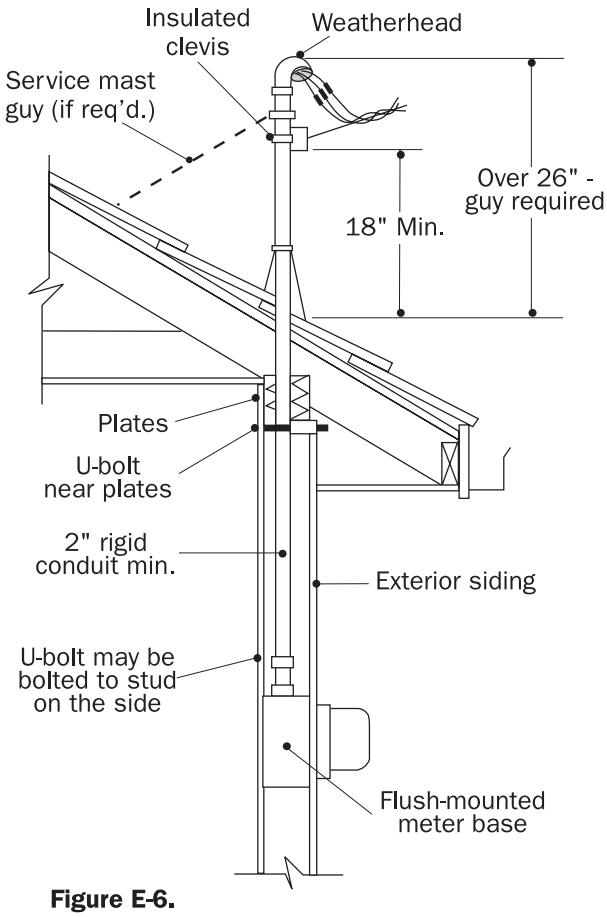


Figure E-6.
Flush-mounted meter base.

CUSTOMER-OWNED METER POLE

If a customer-owned meter pole needs to be replaced, Central Lincoln will provide a 35' pole and riser at no cost. **However, Central Lincoln will not reattach the meter to the new pole.** It is the customer's responsibility to construct a meter pedestal that will be served, underground, from the provided pole. You have two meter pedestal options:

1. ***Custom built-*** *a pedestal that you or your electrical contractor builds.*
2. ***Factory built-*** *a pedestal that you buy.*

See Figure E-7 for an example of a meter pole replacement.

Your meter pole has the same location requirements as your meter base *(see SECTION A)*. However, they may be located closer to vehicular traffic with approval of your Central Lincoln Engineer. Typically they are installed within 30 feet of your home.

For additional assistance on meter pole installations, contact your nearest Central Lincoln service office, and ask to speak to an engineering technician.

● **Items owned and installed by customer** *(Fig. E-7)*

1. *6 in. x 6 in. x 8 feet min. fully pressure treated post, or factory-built meter pedestal.*
2. *Meter base.*
3. *2" Schedule 40 PVC conduit, couplings and 24" minimum radius elbows.*
4. *Ground wire (in accordance with NEC).*
5. *Ground Rods (in accordance with NEC; 2 required).*
6. *Customer conductors - 18" above top of box.*
7. *3" Schedule 40 PVC conduit, couplings and 36" minimum radius elbow.*

△ **Items owned by Central Lincoln and <u>installed by customer</u>** *(Fig. E-7)*

8. *Pullstring (on spans greater than 50 feet).*
9. *Service Hand-hole (HH-14 or HH-20).*
10. *Schedule 80 PVC, 36" minimum radius elbow.*

□ **Items owned & installed by Central Lincoln** *(Fig. E-7)*

11. *Meter.*
12. *Service pole.*

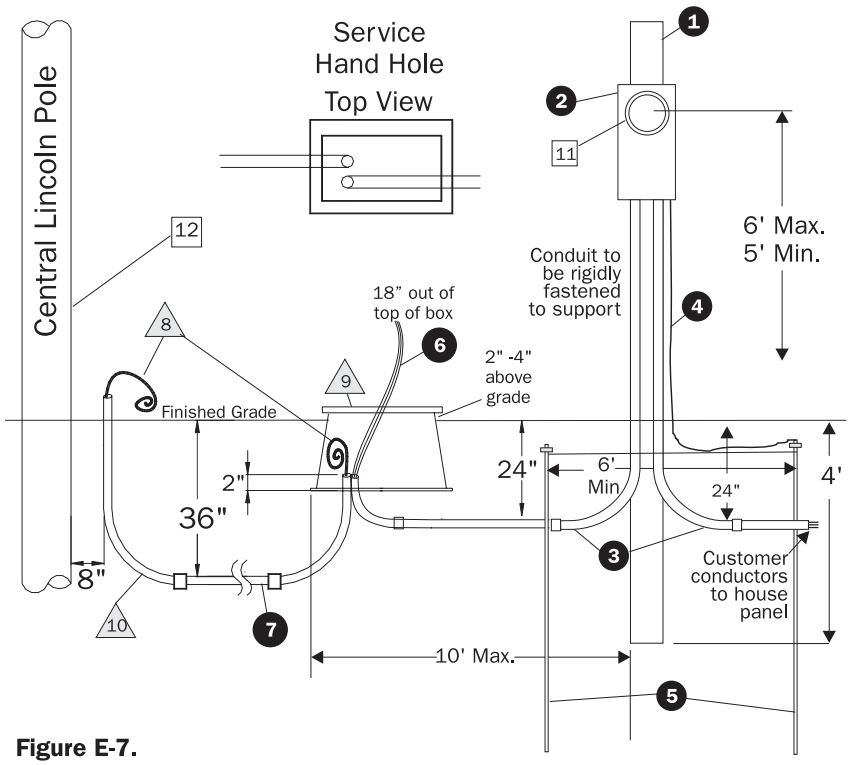


Figure E-7.
Replacing meter-pole with Central Lincoln-owned pole and customer-installed and owned meter pedestal..

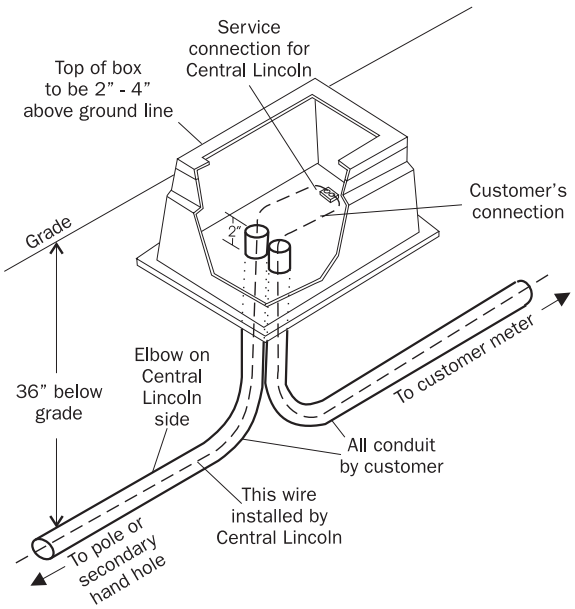


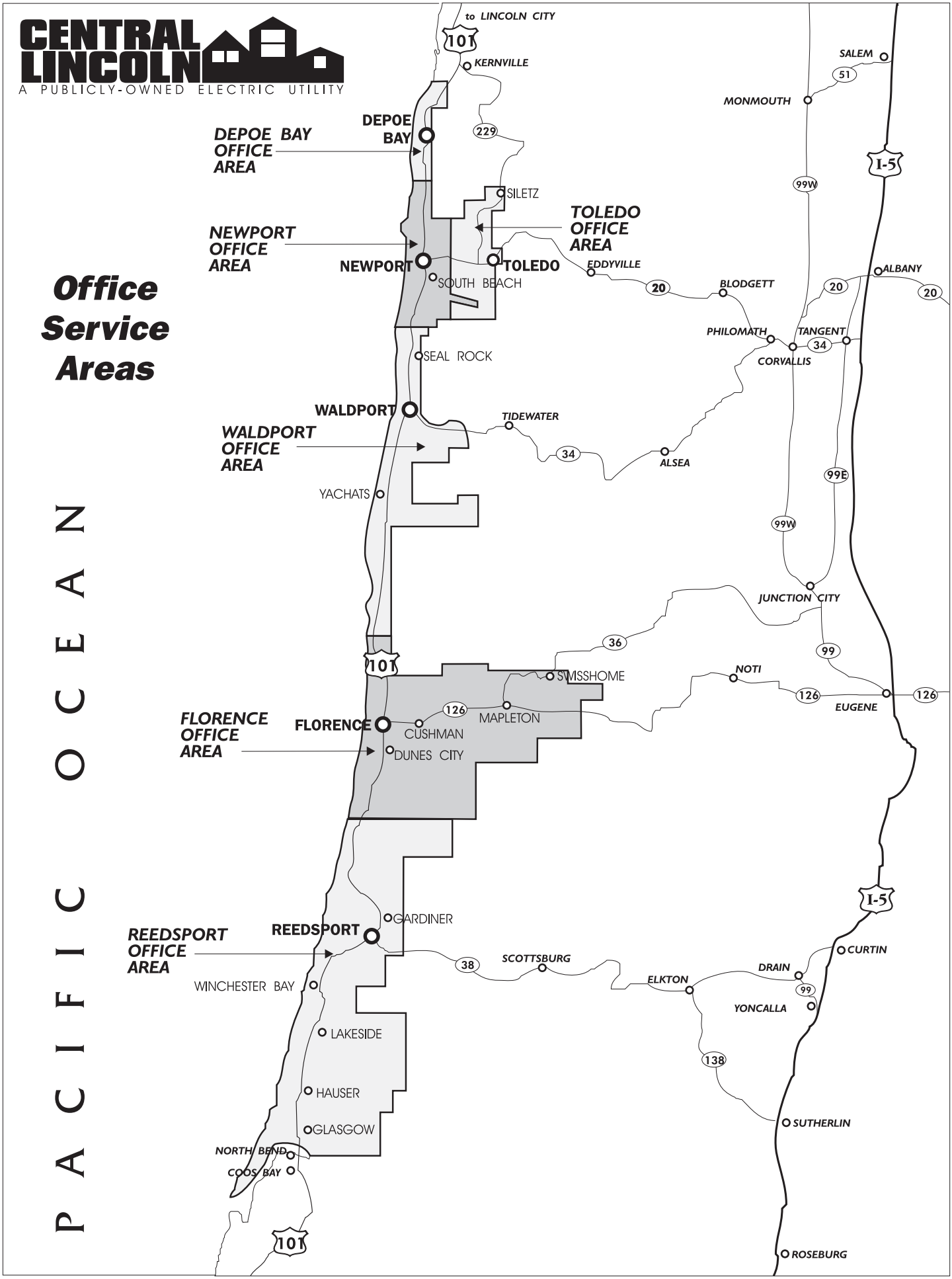
Figure E-8.
Installation of service hand hole (HH-14 or HH-20)

ADDRESSES

To find out which Service Office to call, refer to the Service Area Map on page 22. Please call the office where your project will be located.

Central Lincoln Service Offices

Newport:	(541) 265-3211 • 2129 North Coast Highway • Newport, OR 97365
South Beach Warehouse:	(541) 574-2082 • 3807 SE Ash St. • South Beach, OR 97366
Depoe Bay:	(541) 765-2967 • 531 North Highway 101 • Depoe Bay, OR 97341
Toledo:	(541) 336-2303 • 210 NE Alder Street • Toledo, OR 97394
Waldport:	(541) 563-2112 • 480 NW Hemlock • Waldport, OR 97394
Florence:	(541) 997-3414 • 966 Highway 101 • Florence, OR 97439
Florence Warehouse:	*(Same as above)*
Reedsport:	(541) 271-2181 • 440 Fir Avenue • Reedsport, OR 97467
Reedsport Warehouse:	(541) 271-8724 • 295 Rainbow Plaza • Reedsport, OR 97467
Lakeside, Hauser, Glasgow:	(541) 765-2869 *(Toll-free phone to Reedsport office)*


CENTRAL LINCOLN
A PUBLICLY-OWNED ELECTRIC UTILITY
Office Service Areas
PACIFIC OCEAN
to LINCOLN CITY
101
KERNVILLE
DEPOE BAY
DEPOE BAY OFFICE AREA
229
SILETZ
TOLEDO OFFICE AREA
NEWPORT OFFICE AREA
NEWPORT
TOLEDO
SOUTH BEACH
EDDYVILLE
20
BLODGETT
SALEM
51
MONMOUTH
I-5
99W
ALBANY
PHILOMATH
TANGENT
34
CORVALLIS
SEAL ROCK
WALDPORT
WALDPORT OFFICE AREA
TIDEWATER
ALSEA
YACHATS
99E
JUNCTION CITY
36
99
SWISSHOME
NOTI
126
EUGENE
FLORENCE OFFICE AREA
FLORENCE
MAPLETON
CUSHMAN
DUNES CITY
GARDINER
REEDSPORT OFFICE AREA
REEDSPORT
38
SCOTTSBURG
ELKTON
DRAIN
CURTIN
WINCHESTER BAY
YONCALLA
LAKESIDE
138
HAUSER
SUTHERLIN
GLASGOW
NORTH BEND
COOS BAY
ROSEBURG

GLOSSARY OF TERMS

Clearance – An obstruction-free distance between two objects.

Common Ground Point – The conductor used to connect the grounding electrode to the equipment grounding conductor and/or to the grounded conductor of the circuit at the service.

Conduit – A listed or approved pipe with a smooth interior surface to permit easy drawing-in of the electrical conductors. A conduit may be metallic or nonmetallic, depending on its usage, in accordance with codes and Central Lincoln standards. PVC is recommended, unless galvanized steel is required by the governing road agency.

Corrosion Inhibitor – Electrical joint compound used to retard oxidation of electrical connections.

Customer Service Representative – The designated representative of Central Lincoln, responsible for coordination of new or revised services to Central Lincoln customers. The customer service representative responds to inquiries on policies, standards, practices, rates, and energy utilization.

Drip Loop – A loop formed in overhead secondary conductors at the weatherhead to prevent the entrance of water into the service entrance conduit and equipment.

Electrical Inspection Agency – The qualified representative of a city, county or State of Oregon, who has been authorized by governmental agencies to inspect electric service installation on their behalf.

Guying – Cables or braces used to support the strain of overhead conductors.

Listed – Equipment or material accepted by nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation. Such organizations maintain periodic production inspections of listed equipment and materials, and state that the items have been tested and found suitable in a specified manner.

Manual Circuit-Closing Block – A provision for paralleling the meter circuit, allowing the meter to be removed without interrupting service to the customer.

Meter Base – The mounting device consisting of meter jaws, connectors, and enclosure for accommodating socket-type meters.

Meter Equipment – Any equipment associated with measuring electric energy.

Meter Jaw – A spring-loaded receptacle installed inside the meter base, interfacing the terminals of the meter to the source and load conductors of the service.

Meter Pole – A pole that supports the metering equipment owned and maintained by the customer.

NEC – National Electrical Code which governs the installation of the customer's equipment.

NESC – National Electrical Safety Code, which governs Central Lincoln's equipment.

Neutral – Grounded conductor in a single-phase, three-wire or three-phase, four-wire system. The service conductor that is at zero potential to ground.

Point of Attachment –Point at which Central Lincoln's service wire and the customer's conductors are connected, either at the weatherhead for overhead or the service hand hole for underground.

Point of Delivery – The location on the customer's premises where Central Lincoln's service wire and the customer's system are interconnected.

Seal – The locking device used to secure meter and/or service entrance equipment to assure safety and security for the unit.

Select Backfill – Native soil or soil brought in from another area, free from sharp objects, rocks, scrap building material and corrosive material.

Self-Contained – In reference to meter bases: a device designed and rated to continuously carry the entire capacity of service entrance equipment. The maximum self-contained meter base current rating approved by Central Lincoln is 400 amperes *(also called a single-phase Class 320 A meter)*.

Service Entrance Conductors – The conductors which extend between the customer's meter base and the point of delivery.

Service Entrance Equipment – Service conduit, conductors, weatherhead, meter base, enclosures, service disconnect and service panel.

Service Handhole - Open-bottomed junction box with removable lid that provides for installation and maintenance of electrical connectors between Central Lincoln service wire and customer-owned service entrance wire.

Service Line - See "Service Wire"

Service Mast – The conduit above the meter used to provide mechanical protection for the service conductors and to support the service drop from Central Lincoln's system.

Service Wire – The conductors from Central Lincoln system to the customer's point of delivery, which can be overhead or underground.

Temporary Service – An electrical service installed by Central Lincoln to provide power to a customer on a temporary basis (less than one year).

UL *(Underwriters' Laboratories)* – A nationally-recognized test laboratory which lists materials that have been tested

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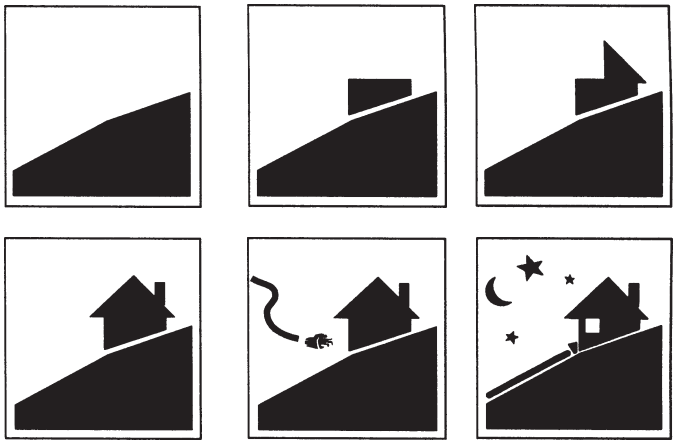

Electric Service Handbook

Single-Family
Residential
Services

Revised 5/08

CENTRAL LINCOLN
A PUBLICLY-OWNED ELECTRIC UTILITY

OVERVIEW OF HOOK-UP PROCEDURES

The following is a general outline of how you get a new electrical service for a single-family residential structure. This outline assumes that Central Lincoln PUD (Central Lincoln) has existing power facilities to your site. If power is not readily available, Central Lincoln will need to engineer your project. If you have any questions, please contact your nearest service office.
PLEASE NOTE: Overhead temporary services (construction power) will be allowed, but all new permanent services must be underground.

Your Responsibilities to Obtain Temporary Service

_____**1.** Contact your nearest Central Lincoln service office *(see page 21)* for service application and service location.

_____**2.** Install the appropriate temporary meter base.

_____**3.** Obtain an electrical inspection *(see page 4)*, and verify service location.

_____**4.** After successful inspection ("green tag"), contact Central Lincoln for service connection.

Your Responsibilities to Obtain Permanent Service

_____**1.** Determine the size of service you want [200 amp, 400 amp or greater] *(see page 4).*

_____**2.** Contact your nearest Central Lincoln service office *(see page 21)* for service application and service location.

_____**3.** Notify other utilities of your project *(see page 4)*.

_____**4.** Install your service entrance equipment. (Remember, all new permanent service must be underground.)

_____**5.** Call the "One Call" system **before** you dig at **811** *(see page 5)*.

_____**6.** Provide a clear path/trench for your service line *(see Underground - Section C)*.

_____**7.** Request trench inspection from your local Central Lincoln office, or Customer Engineering representative.

_____**8.** Obtain an electrical inspection and "green tag" from local inspection agency *(see page 4)*.

_____**9.** After you have passed your electrical inspection, contact Central Lincoln for a final inspection. After final inspection is passed, service connection will be scheduled.

Central Lincoln's Responsibilities

_____**1.** Install your service line, meter and connect to your weatherhead or service hand-hole.

_____**2.** Energize your system.

Scheduling

If only a service wire and meter installation are required, services are typically energized 3-5 days after you have completed the appropriate "Your Responsibilities" section above. If additional work is required, it may take longer.

Service Charges

Charges vary due to the type of service you are requesting and the type of system we have in your area. Contact our local engineering office for current rate information *(see page 21)*.

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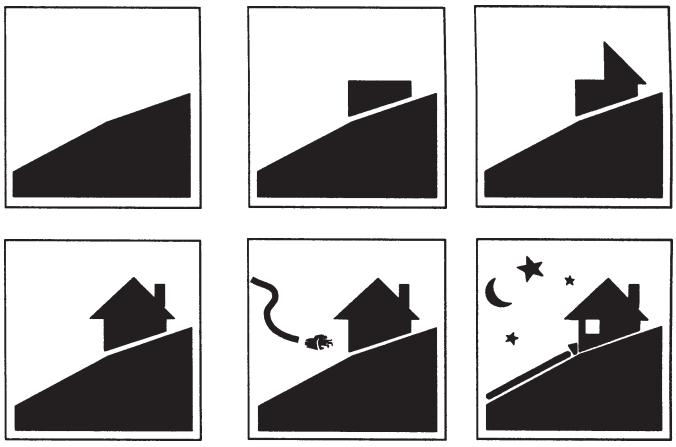

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