

OHOP MUTUAL LIGHT COMPANY



ELECTRIC

SERVICE

HANDBOOK

**RESIDENTIAL
SERVICE**

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ELECTRIC SERVICE HANDBOOK

Getting Started

Installing new electrical service to a home is a joint project between the homeowner/contractor and Ohop Mutual Light Company. Ohop Mutual is responsible for installing the service lines to bring power to the Main Service Panel/Meter Socket and for installing the meter in the meter socket.

The homeowner and/or contractor must complete the following:

- The installation of the meter socket
- All electrical wiring in the residence
- Obtaining permits and inspections
- Maintaining the equipment
- Keeping the meter socket accessible
- Providing and maintaining a clear path/trench for the service line per Ohop Mutual specifications

As a condition of service with our company, the following items must be completed in order to process the service installation in the fastest and most efficient manner possible.

Step 1: Complete and Submit a Service Installation Request form

Step 2: Pay the Distribution Design Fee

Step 3: A Distribution Designer will contact you to Schedule an appointment to meet on the property site.

Step 4: A price quote summarizing the cost of service installation will be mailed to you after the onsite meeting.

Step 5: Payment-all quotes must be Paid in Full prior to the job being scheduled for construction.

- Any change in job design will require an additional analysis of job cost. Please contact our office if you intend to change previously determined job specifications.

Step 6: Service Application and Membership Application

- All prospective customers must complete a service and membership application prior to the job being scheduled. Due to Identity Theft regulations, all applicants must provide Photo ID.

Inspections and Codes

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

Once the service equipment is installed, the State of Washington, or the governing jurisdiction, requires that the installation pass an electrical inspection before our company can connect the service to Ohop Mutual Light Company's system. **It is the homeowner and/or contractor's responsibility to request the inspection.**

Electrical inspections for the majority of Ohop Mutual Light Company's service territory are done by the State of Washington Department of Labor and Industries. Electrical inspections that are within the Town of Eatonville are performed by Town personnel.

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|--------------------------------------|--|
| ✓ Department of Labor and Industries | (253) 596-3808 or www.lni.wa.gov |
| ✓ Town of Eatonville | (360) 832-3361 |

Ohop Mutual Light Company will make connection only after approval by the authorized inspecting authority.

Meter Location

The homeowner/contractor is required to install the meter socket in a place that is accessible to Ohop Mutual. All locations are subject to approval by an Ohop Mutual Light Company representative. If you have questions regarding meter location, call our distribution design department at (253) 847-4363.

The requirements for properly locating the meter socket are as follows:

- It must be outside
- It must be located on the front 1/3 of the structure closest to normal public access
- It must be located in an area that is not subject to being fenced (patios, decks, porches, backyards)
- It must be located on a structure that is owned by you

The reasons for these requirements are to ensure Ohop Mutual Light Company employees can read and maintain the meter in a cost-effective manner, limit access to private property, and disconnect the service in case of an emergency.

Removing and Installing Meters

Only authorized and qualified Ohop Mutual Light Company personnel are permitted to remove and install meters.

Underground Locates

If trenching or excavation work is necessary, the Utilities Underground Location Center must be notified two working days prior to performing any work.

Underground utility locates may be requested by calling the Utilities Underground Location Center (UULC). The center has established a system called the “One Call” system. The One Call system will notify the appropriate utilities that locates are required. However, in some areas not all utilities are members of the One Call system. In those areas you will have to contact the utility directly. ***There is no charge for this service.***

To obtain a locate, call the Utilities Underground Location Center (UULC) One Call number at (811).

The State has established a color code system to identify each utility’s location markings so everyone can see what has been located. The color codes are:

Red.....	Electric	Yellow.....	Gas/Oil
Orange.....	Telephone/Cable	Blue.....	Water
Green.....	Sewer	White.....	Area to be Located

Note: The State requires that any digging within 24 inches of either side of the location markings be done by hand.

Easements

A utility easement is a legal right to use someone else’s land for the purpose of installing an electric overhead or underground line. The property owner, as Grantor, grants ONLY the Grantee (Ohop Mutual) permission to install, maintain and replace such equipment required to serve a neighboring property. Easements must be signed and notarized prior to installing service. Ohop Mutual will assist you in the easement process if needed.

Contacting Other Utilities

New construction typically involves the installation of telephone, cable television, and 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 notify them of other utilities providing you service.

OVERHEAD SERVICE

Getting Started

Complete and submit a Service Installation Request form with the Distribution Design fee.

Next, determine the location of the meter socket. The meter socket should be located on the outside front one-third of the structure closest to normal public access.

Another factor to consider when choosing the meter socket location is what types of terrain the line will be crossing. Ohop Mutual strongly suggests that, whenever possible, avoid service line routes that will cross the driveway. Service lines crossing driveways can be hit by vehicles and cause damage to the service equipment and even to a structure.

An onsite meeting between the contractor/homeowner and the field engineer will be scheduled to best determine the meter location and route.

If the service line will be passing through any trees, the homeowner/contractor will be required to prune the trees in order to provide a clear path for the service line.

Do not attempt to trim or prune trees that have grown into the power lines. Serious injury or death may occur. Power lines are high voltage and may not be insulated. Ohop Mutual will trim trees that have grown near or into primary lines at no cost to you.

Service Mast Requirements

A service mast is a conduit that runs vertically from the top of the meter socket up through the roof. It contains the service entrance conductors and typically supports one end of the service line. Service masts are necessary when installing an overhead service and are installed by the homeowner or an electrical contractor. The requirements for the installation of the service mast are located in the NEC. Ohop Mutual Engineering will determine the mast height to ensure the power company's supply conductor meets NESC requirements.

Additional mast supports

Additional mast supports, typically a guy or a brace, are required for any service line that is over 100 feet in length. Guys and braces are installed to prevent the weight of the service line from pulling the service mast away from the structure. Further information regarding guying and bracing service masts is available in the NEC.

Additional mast supports are required when:

- The service line is over 100 feet long
- The top of the service mast is more than 24 inches above the roof

Customer-Owned Meter Pole

If a meter pole is required for the project, it is property owner's responsibility to purchase and install it. The pole must meet or exceed the following requirements.

- It must be made out of wood and be round
- It must be fully pressure treated
- It must be Class 6 or better
- It must be at least 30 feet long (25 feet with prior approval)
- It must have a minimum diameter of 5-1/2 inches at the top
- It must have a stamped date of 10 years or less of installed date

The installation requirements for a meter pole are as follows:

- It must be buried a minimum of 5 feet in the ground. If soil conditions are poor, crushed rock should be used as substitute for backfill to ensure pole stability
- It must be guyed - if the distance between the meter pole and Ohop's pole is greater than 80 feet

The meter pole has the same location requirements as the meter socket. Typically, they are installed within 30 feet of the structure.

UNDERGROUND SERVICE

Getting Started

The first step when installing a new underground service is to complete and submit a Service Installation Request form with the Distribution Design fee.

An onsite meeting between the contractor/homeowner and the field designer will be scheduled to best determine the meter location and trenching route.

Ohop Mutual is responsible for the installation and maintenance of all underground conduit and conductors between the transformer and the meter socket.

Ohop Mutual will install all underground lines in Schedule 40 PVC conduit. Because of driveway crossings or areas of hazard, the contractor/homeowner (if approved by Ohop Mutual) may install sections of the required size of gray electrical grade Schedule 40 PVC conduit prior to the installation of service by Ohop Mutual. White water pipe or sewer pipe are not acceptable.

Gray conduit signifies that electrical or communication cables are inside.

Trenching Requirements

The homeowner /contractor is required to provide a trench from the meter socket to the pole or device where the service line will originate. The trench must meet the following requirements:

- It must be no less than 34 inches and no more than 42 inches deep for secondary conductors
- It must be no less than 36 inches and no more than 47 inches deep for primary conductors
- Minimum trench width for both secondary and primary is 18 inches
- It must be flat and free of sharp rocks and construction debris
- It must be free of roots

To ensure adequate working space to install the service line into the meter socket, a hole 34 inches deep, 36 inches wide, and 48 inches long is required at the service entrance. The homeowner/contractor is responsible for providing this hole.

Upon completion of the trenching, the homeowner/contractor should contact Ohop Mutual engineering department to schedule a ditch inspection prior to the installation of the service.

In some cases an inspection of the backfill will be required to verify that a minimum of 6 inches of select backfill has been installed over all conductors.

All underground trenches that contain primary voltage cable cannot be energized until proper backfill has been completed.

Please Note: all underground trenches must be back filled within 10 days of installation or service will be disconnected until trenches are properly back filled.

Remember: Contact the One Call center at (811) for underground locates.

Service Equipment Installation Requirements

After the meter socket location, the service line route, and the size of the service (200 Amp, 320 Amp) has been determined, installation of the service equipment can begin.

There are two ways this equipment can be installed:

1. Flush mounted
2. Surface mounted

When installing the service equipment, ensure that the meter socket is installed so that the center of the meter will be between 5 and 7 feet above finished grade and the service entrance conduit has only one 90-degree long sweep bend.

The size of the service determines the options on the size of the service entrance conduit. The options for the various sizes are as follows:

<u>Service Size</u>	<u>Conduit Requirement</u>
0-200 Amps	2 ½ Inch Conduit Schedule 40 or 80 gray
201-400 Amps	3 Inch Conduit Schedule 40 or 80 gray
Over 400 Amps	An Ohop Representative will determine the required conduit size

Meter Pedestals (Required for Manufactured Homes)

A meter pedestal is a structure that supports the service equipment. If a meter pedestal is required for the project, it is the homeowner/contractor 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, the meter socket is installed at this same location.

You have two meter pedestal options:

1. Custom built
2. Factory built

The meter pedestal must meet the following:

- A custom-built pedestal must be mounted on a 4"x6"x10' (minimum size) pressure treated post
- Must be no less than 4 feet in the ground
- Not be in an area that is subject to being fenced
- These can also be constructed on Unistruts embedded in 4" thick slab (Approved Specifications will be required)

METERING

This section provides Ohop Mutual requirements for the metering equipment that must be provided in order to hook up the new service. Please follow these requirements to avoid a delay in hooking up the service.

General Requirements

The homeowner/contractor provides and installs all equipment including the Vertical Conduit below the meter base and the sweep at the bottom of that conduit.

Ohop Mutual shall provide the following:

- The meter
- The service line (the wire from the transformer to the meter base)

Meter Socket Requirements

The meter socket must meet the following general requirements. Specific requirements for 200 and 400 Amp services, and for outbuildings, are listed later in this section.

The Meter Socket

- Must be UL (Underwriters Laboratory) approved
- Must be rated for exterior use and be rain tight according to NEMA-3R (National Electric Manufacturing Association)
- Must have all unused openings tightly sealed from the inside of the socket
- Must be plumb and securely fastened to the supporting structure

If a remote meter service is required, a main service disconnect must be included (Either a custom or factory built meter pedestal is acceptable).

Grounding Requirements

All meter sockets, enclosures, and conduit shall be bonded and grounded in accordance with the NEC.

Clearance Requirements

The following clearances are required around all meter installations. The homeowner must provide and maintain these clearances.

- The center of the meter shall be between 5 and 7 feet above finished grade
- A working space of 36 inches wide by 36 inches deep is required around the meter. This working space is to be kept clear of any obstructions including landscaping
- There shall be a minimum horizontal clearance of 10 inches between the center of the electric meter and any obstruction
- If a recessed meter socket is installed, a clearance of 10 inches is required from the center of the meter to the closest portion of the wall
- If a flush or recessed meter socket is installed, the siding or finished surface of the structure shall not overlap the cover of the meter socket

Single Family Residential - 200 Amp

The 120/240 Volt, 200 Ampere service is the most common service installed by Ohop Mutual. Typically, it is installed on homes with a living area of less than 2500 square feet. However, depending upon the type of equipment being installed, a larger service may be necessary. To ensure proper electrical requirements are met, please consult with a Licensed Electrician.

Underground

Meter sockets for 0-200 Amp underground services shall, in addition to the meter socket requirements listed previously, also include the following:

- Be rated for 120/240 Volts and 200 Amps
- Contain four meter jaws and one connection point for the neutral conductor
- Accept 2-1/2 inch PVC conduit
- Have lugs (electrical connectors) that are marked to accept 4/0 aluminum conductors
- The center knockout shall not be used because of the bending radius of the cable

Overhead

Meter sockets for 200 Amp overhead services shall, in addition to the meter socket requirements listed previously, also include the following:

- Be rated for 120/240 Volts and 200 amps
- Contain four meter jaws and one connection point for the neutral conductor

320 Amp Services (400 Amp)

The meter socket required for a 120/240 Volt, 400 Ampere self-contained service is called a “Class 320” meter socket. It can be installed on residences where the continuous current rating is 320 amps or less.

Please Note: If your structure will require more than 320 Amps continuous current rating, installation of a Current Transformer (CT) service will be required.

Underground

Class 320 meter socket for 400 Amp underground services shall, in addition to the meter socket requirements listed previously, also include the following:

- Be rated for 120/240 Volts and 320 Amps continuous
- Contain four meter jaws and one connection point for the neutral conductor
- Have lugs that will accept 350 MCM aluminum wire
- Accept 3 inch PVC conduit through a knockout in the bottom corner of the enclosure
- Contain a RED HANDLE lever bypass. Class 320 manual bypass blocks are not acceptable

Overhead

Class 320 meter socket for 400 Amp overhead services shall, in addition to the meter socket requirements listed previously, also include the following:

- Be rated for 120/240 Volts and 320 Amps continuous
- Contain four meter jaws and one connection point for the neutral conductor
- Contain a RED HANDLE lever bypass. Class 320 manual bypass blocks are not acceptable

400 Amp CT Services or greater

CT services (Single Phase 400-600 and 3Phase 400-1200) are generally available. These services require a different meter base. It also requires additional equipment (CT enclosure, conduit, CT mounting bracket, etc). Contact Ohop Mutual engineering department for more information and to verify availability.

TEMPORARY SERVICE

Temporary Services

Ohop Mutual defines a temporary service as a means of supplying electricity to a site for less than one year and for construction only. Typically, a temporary service is installed to provide power for the construction phase of a project while provisions are being made for the permanent power system.

Several items need to be completed before we can energize the temporary service. They are:

- Complete and submit a Service Installation Request form with the Design Fee
- A line design engineer will contact you to set up an appointment to meet on the property to determine the type of temporary service required
- A price quote summarizing the cost of service installation will be mailed to you after the onsite meeting.
- Obtain an electrical inspection approval from the Department of Labor & Industries of the service equipment - completed by the homeowner/contractor
- Contact Ohop when the service has been approved by the Department of Labor & Industries and is ready to be energized

TRENCHING

General - Secondary/Service Ditch

Trenching Information and Requirements:

- Prior to any trenching, an underground locate request must be completed with the Underground Utility Location Center (UULC) (811). There is no charge for this service.
- Trench depth shall be no less than thirty-four (34") inches, no more than forty-two (42") inches
- Trench width shall be no less than 18" inches
- In order to allow adequate working space while installing the service line into the meter socket, a hole 34" deep, 36" wide, and 48" long is required at the service entrance. The homeowner/contractor is responsible for providing this hole. (See Appropriate Specifications)
- Trench spoils shall be placed at a minimum two (2) feet from the trench edge
- All roots must be cut back to trench wall to allow unrestricted working space
- Trench bottom shall be relatively smooth, level and free of all sharp objects, rocks and debris
- All trenches must be dug to provide a minimum of bends. If a bend is required, a minimum of a 36" radius sweep will be allowed. Gradual bending of a trench to allow conduit to freely bend is recommended. Contact the Ohop Mutual Engineering Department for additional trenching information
- Backfill shall be free of materials that may damage the conduit system
- In some cases an inspection of the backfill will be required to verify that a minimum of six (6") inches of select backfill (no rocks larger than 6" in diameter) has been completed
- No placement of any conduit shall be made in trenches unless directed by an Ohop Employee
- If conduit is installed by a third party prior to the service installation, it must be glued, tested (install a pull line) and ends protected prior to backfill. An inspection shall be performed by Ohop personnel prior to backfill
- White water pipe and fittings are not to be used as part of the conduit system, including sleeves
- A trench inspection must be completed by an Ohop employee prior to installation of service
- All underground trenches must be properly backfilled within 10 days of installation or service will be disconnected

General - Primary Ditch

Trenching Information and Requirements:

- Prior to any trenching, an underground locate request must be completed with the Underground Utility Location Center (UULC)(811). There is no charge for this service.
- Trench depth shall be no less than thirty-six (36") inches and no more than forty-seven (47") inches
- Trench width shall be no less than 18" inches
- Trench spoils shall be placed at a minimum two (2) feet from the trench edge
- All roots within the ditch must be cut back to the wall to allow an unrestricted working space
- Trench bottom shall be relatively smooth, level and free of sharp objects, rocks and construction debris
- All trenches must be dug to provide a minimum of bends. If a bend is required, a minimum of a 36" radius sweep will be allowed. Gradual bending of a trench to allow conduit to freely bend is recommended. Contact the Ohop Mutual Engineering Department for additional trenching information
- All trenches that enter a vault location must be dug in line with the vault. All efforts must be made in avoiding sweeping into a vault
- Backfill shall be free of materials that may damage the conduit system
- In some cases an inspection of the backfill will be required to verify that a minimum of six (6) inches of select backfill has been completed
- The vault hole shall be provided by the contractor/owner. The size of our standard vault hole shall be thirty-four (34) inches deep, four (4) feet wide and four (4) feet in length. Four (4) inches of ½ inch crushed rock shall be placed under the vault. Additional vault hole size may be required for larger vaults
- No placement of any conduit shall be made in trenches unless directed by Ohop Mutual's Operations Department
- If conduit is installed by a third party prior to the service installation, it must be glued, tested (install a pull line) and ends protected prior to backfill. An inspection shall be performed by Ohop personnel prior to backfill
- White water pipe and fittings are not to be used as part of the conduit system, including sleeves
- Underground trenches that contain primary voltage cable will not be energized until proper backfill has been completed
- A trench inspection must be completed by Ohop Mutual's Engineering Department prior to the installation of service.