Cheney Light Department

2022
Electric Service Requirements

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1.0 PREFACE

If you are planning to install, repair, or upgrade your electric service, you probably have some questions and concerns. The Cheney Light Department (CLD) has designed this handbook to help guide you through the process.

This handbook includes the most commonly encountered CLD requirements. However, this manual does not cover all installations. If you have any questions or a unique installation please visit the CLD at 112 Anderson Road, Cheney WA or call 509-498-9230 for assistance. Spending some extra time during your project’s planning phase can save time, money, and minimize confusion as it moves ahead.

This handbook supersedes all previous editions. Since the requirements are subject to change without notice, please coordinate your work with CLD. This book is superseded by the following:

- The Cheney Municipal Code (CMC) - electric requirements are found in Chapter 14 of the CMC.
- The National Electric Code (NEC) - regulates customer wiring past the point of the meter.
- The National Electric Safety Code (NESC) - regulates utilities companies including CLD.

For the purposes of this book, residential services are those that serve individual residences, apartments, mobile homes or living units for domestic purposes. Commercial services include all other services.

Best Regards,

Steven P. Marx
The City of Cheney
Light Department Director
2.0 SAFETY

Safety is paramount for both our Lineman and our Customers. We follow all electrical service requirements according to Federal, State, County and City Codes. By following these requirements, we ensure everyone’s safety, which also guarantees that a quality product and/or service is delivered and installed. Please Note:

- **CALL #811 for a locate a minimum of two business days before you dig.** This prevents accidental damage to underground utilities, equipment and people.
- **Give us some space to work.** Please keep shrubs and structures 10 feet away from the front side, 3 feet from other sides of transformers, and 4 feet from meters.
- **Obstructions will cause delays** when restoring electric service. Contact the CLD before planting or building around a transformer. Additional charges may apply for return trip(s) that are serviced by CLD Lineman.

3.0 CONTACT INFORMATION

Cheney Light Department 509-498-9230
Cheney Finance (Electric & Water) Connection Department 509-498-9209

4.0 GENERAL SERVICE REQUIREMENTS

These guidelines are based on the typical utility practices necessary to supply reliable and safe service. All requirements for construction and upgrades are in Sections 5.0 – 7.0. In addition, installations must conform to the rules and regulations of the inspection authorities having jurisdiction. These regulations include, but are not limited to the National Electrical code, National Electrical Safety Code, State Rules and Regulations, Spokane County and City of Cheney ordinances and codes.

Services should remain on whenever possible. A service that has been turned off for 12 months or more will require a Labor and Industries (L&I) inspection to turn the service back on. If a service has been off for 18 months or more, it will be treated as a new connection, which will have to comply with all current codes, requiring upgrades to the service connection, meter and service panel.

4.1 Utility Rates and Regulations

Copies of currently effective rates, rules, and regulations are available within city ordinances and may be requested, or found at: [https://www.cityofcheney.org/DocumentCenter/View/733](https://www.cityofcheney.org/DocumentCenter/View/733) and [https://library.municode.com/wa/cheney/codes/code_of_ordinances?nodeId=TIT14EL](https://library.municode.com/wa/cheney/codes/code_of_ordinances?nodeId=TIT14EL).

4.2 Load Additions

It is the **customer’s responsibility** to notify CLD when adding significant load. Large loads that generally require CLD notification include, but are not limited to: electric tankless water heating systems, central air conditioners, electric vehicle chargers, central electric space heating, large motors and/or other major loads. CLD will help to determine if the transformer and service wires are adequate for the increased load. In some cases, CLD will need to install larger transformers and wires to accommodate the increased load. The costs of these changes may be charged to the customer.
4.3 Point of Delivery

The point of delivery is the location where CLD’s service conductors and the Customer’s service entrance conductors are connected. This is generally at the weather head on an overhead service and at the sweep up into the metering equipment on an underground fed service. CLD requires a building be served using a single point of delivery, supplied through a single meter installation, at a single voltage and phase classification unless permitted by exception.

- The customer provides, maintains, and operates at their expense all wiring and equipment, except the meter, on the load side of the point of delivery.
- The customer owns the meter socket and is responsible to remove or remount it to facilitate the installation of siding. Siding shall be installed so as not to interfere with the installation or removal of the meter.
- CLD owns, installs, and maintains equipment on the source side of this point as well as the meter and any associated current transformers (CTs) and voltage/potential transformers (PTs).
- Buildings, subdivided into individual tenant spaces, require multiple meters for the individual tenants. The service entrance conductors for these meters must be fed from a main disconnect, switch board or bussed together to provide a single point of delivery.
- Metering equipment is located as close as practical to the point of delivery, but in no case more than 25 feet.
- The customer is responsible for providing equipment to CLD specifications needed to provide one point of connection.
- The point of delivery is to be located above ground except in the Cheney Downtown Network.
- Outside points of delivery are generally required. Points of delivery inside of a building will only be allowed when required by mitigating circumstances and in all cases CLD will need 24-hour access to the delivery point.

4.4 Installation and Repair

CLD provides, maintains, and operates at their expense all wiring and equipment, on the source side of the point of delivery. In addition, CLD is responsible for the installation, repair, and calibration of the electric meter.

4.5 Landscaping

CLD provides information on acceptable methods for screening of pad-mounted transformers and switching enclosures. These designs should be tailored to fit specific needs of the home or business owner. This information is available from the CLD office.

Any item, tree, or bush placed, or growing, within 48” of meter glass is not allowed.

4.6 Tree Trimming

The CLD is responsible to keep trees and bushes away from overhead service conductors from the pole to the building. For the safety of customers and contractors, the CLD will de-energize, disconnect or drop wire down to accommodate the need for customers to do their
own tree trimming. **To get on the CLD work schedule, a minimum of two business days advance notice of the work being done is recommended.**

### 4.7 Equipment Protection

It is the **responsibility of the customer** to provide power conditioning devices that may be required to provide the quality of “power” necessary for optimum performance of their sensitive equipment such as computers or other electronic appliances. Since power disturbances can be created on the utility or customer side of the delivery point, the best locations of these devices may be at the equipment.

Customers are responsible to provide protection for their equipment that could be damaged by single phasing of three-phase loads.

### 4.8 Customer Owned Equipment on CLD Poles

**No customer owned equipment shall be mounted to CLD primary pole.** All secondary metering poles are customer owned and shall only include the metering equipment, no other switches, luminaries, signs or other equipment shall not be mounted on metering poles, except CLD area lights.

### 4.9 Meter Seals

The purpose of meter seals is for safety and the prevention of tampering. **Under normal circumstances, only CLD personnel shall remove seals.** It is the customer’s responsibility to notify CLD prior to removal of meter seals for any reason. **Seals may be removed only in an emergency.** CLD must be notified as soon as possible thereafter. **Red seals must not be cut. Broken or cut seals will be treated as a tampering situation. Tampering fees will apply in these situations.**

**Any person who cuts CLD seals and/or wrongfully obtains electric service bypassing, tampering with, or modifying a meter, may be convicted of a crime and billed for costs associated with the investigation.**

Bypassing meter sockets by electricians or customers is not allowed for any reason without CLD approval. **All power must be metered.** Cutting, or removal, of meter seal by an electrician, or unqualified person, is not allowed. Cutting or removal of CLD conductor at the weather-head by an electrician is not allowed.

**Caution: With some types of meter bases, removal of the meter does not de-energize the service.**

### 4.10 Motors

Three phase motors 35 horsepower or larger, and frequently started 10 horsepower and larger motors may require reduced-voltage starting equipment. CLD requires reduced-voltage starting in some cases to limit voltage flicker and the problems it causes. CLD will furnish starting flicker calculations on request. The allowed starting current will depend on the frequency of starting, and the size of the electrical service. Customers can install reduced voltage starting equipment to reduce voltage flicker.

Three phase motors 25 horsepower or larger require closed delta or wye service.
5.0 NEW AND UPGRADED SERVICE REQUIREMENTS

5.1 Electrical Permit & Inspection

A. New services

The customer or their electrician is responsible for obtaining an electrical permit before work is started and having their completed work inspected by the Washington State Department of Labor & Industries (L&I). CLD requires all new services to pass a Washington L&I inspection and so noted with an inspection sticker prior to energization.

B. Upgraded and disconnected services

When CLD disconnects a service for upgrades, alterations or discontinuance, it will be reconnected if the modifications meet our requirements and;

1. If work performed by the homeowner – a final L&I inspection approval.

2. If work performed by a licensed electrician – inspection requirements vary by office. The electrician should call the CLD office for requirements.

3. If a service has been disconnected for a period of 12 months or more an inspection by L&I will be required. If disconnected for more than 18 months, it will be treated as a new connection and compliance with all current codes, requiring possible upgrades to the service connection, meter and service panel will apply.

4. A minimum of two business days advance notice must be given for removal of any meter locking device.

5.2 Required Clearances

See the following figures for Horizontal Separation for Pad Mounted Equipment and Vertical Separation for Overhead Secondary Wires.
Horizontal Separation for Pad Mounted Equipment

- Pool: 15' from Padmount transformer
- Building: 10' from Padmount transformer
- Window, vent, or other opening: 10' from Padmount transformer
- Gas meter: 3' from Padmount transformer
- Fire escape: 10' from Padmount transformer
- Fuel tank: 20' from Padmount transformer
- Fire hydrant: 6' from Padmount transformer
Horizontal Separation for Pad Mounted Equipment

Sloping terrain limited to 1/4" rise per 1' run in this area.
Vertical Separation for Overhead Secondary Wires
5.3 Available Fault Current (AFC) at Point of Delivery

**Customer must provide service entrance equipment rated to interrupt the amount of fault current available.** CLD will provide a location specific available fault current calculation if requested. Minimum main circuit breaker fault duty rating shall be 10,000 amperes for residential and 20,000 amperes for non-dwelling installations. Higher ratings may be required depending on service size. Below are standard AFCs by transformer size.

<table>
<thead>
<tr>
<th>Transformer Size/Type</th>
<th>Fault Current (amperes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120/240 volt single-phase</td>
</tr>
<tr>
<td><strong>Single-Phase Transformers</strong></td>
<td></td>
</tr>
<tr>
<td>1-10 kVA/1-ph</td>
<td>2778</td>
</tr>
<tr>
<td>1-25 kVA/1-ph</td>
<td>6944</td>
</tr>
<tr>
<td>1-50 kVA/1-ph</td>
<td>13889</td>
</tr>
<tr>
<td>1-75 kVA/1-ph</td>
<td>20833</td>
</tr>
<tr>
<td>1-100 kVA/1-ph</td>
<td>27778</td>
</tr>
<tr>
<td>1-167 kVA/1-ph</td>
<td>43490</td>
</tr>
<tr>
<td><strong>Three-Phase Transformers</strong></td>
<td></td>
</tr>
<tr>
<td>75 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>150 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>225 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>300 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>500 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>750 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>1000 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>1500 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>2000 kVA</td>
<td>n/a</td>
</tr>
<tr>
<td>2500 kVA</td>
<td>n/a</td>
</tr>
</tbody>
</table>
5.4 Availability of Service

It is important that CLD be provided, as soon as possible, with accurate load information and other requested data before the purchase or installation of equipment and wiring. This will allow CLD to determine the availability of service, service location and available voltage.

For all new commercial and multi-family residential units, the owner/electrician must provide a load calculation on the plans or the CLD provided form.

5.5 Service Agreement

A signed service agreement and payment is needed before CLD’s work can be scheduled.

5.6 Available Phase and Voltage

The number of phases and service voltage are subject to availability at your location, contact CLD for determination. Special permission is required for more than one service voltage.

For new installations, the following are the standard available voltages:

<table>
<thead>
<tr>
<th>Single-Phase</th>
<th>120/240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-Phase</td>
<td>120/208 or 277/480</td>
</tr>
</tbody>
</table>

It is the customer’s responsibility to limit the imbalance between phases.

The City does not provide 120 volt only services.

5.7 Service Location

CLD must approve all points of delivery. Customer/electrician must coordinate with CLD prior to installing the meter and service equipment. CLD provides service locations based on capacity requirements, service quality, safety, access, and cost. All of the following will be considered when determining the location for the point of delivery.

- Point of delivery at a location with line of site to CLD’s facilities.
- For accessibility, it should be installed outside in an unlocked area.
- The point of service in fully enclosing patios, porches, and carports is not allowed.
- Provide required clearances from and over present and future buildings, garages, driveways, parking areas, etc. for overhead service conductors.
- Provide required clearances from buried objects, like septic systems, drain fields and fuel tanks for underground service conductors.
- CLD will not route underground service wire under buildings or other structures.
- Altered Services – normally do not require relocation unless there are serious conflicts with CLD’s service location requirements. For example, serious conflicts would be failure to meet code required clearances, critical access, or safety concerns.

5.8 Service Entrance Conductors

Service entrance conductors must be specified and installed in accordance with the national, state, and local electrical codes. In addition, they must meet CLD’s specific requirements.
• The neutral conductor shall be marked with a white strip or tape.
• The customer service entrance conductors will be connected to bottom position in socket.
• On four-wire, 120/240-volt delta installation, an orange marker shall be used to identify that phase which is approximately 208 volts to ground (high leg, wild leg, or power leg). This shall be located on the right side of the meter socket, CT landing platform and on the right side of the main disconnect.
• Metered and non-metered circuits shall not be run in the same raceway or conduit.

5.9 Service Conduit

Conduit is required for all CLD underground conductors.

All conduit is installed by CLD unless special arrangements are made. With the special arrangement CLD will provide the conduit specifications and routing requirements. In all cases underground conduit installation must be inspected by CLD before backfill of the trench.

<table>
<thead>
<tr>
<th>Conduit type</th>
<th>Service Entrance</th>
<th>Single Phase</th>
<th>Three Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200 or less</td>
<td>2”</td>
<td>3”</td>
<td></td>
</tr>
<tr>
<td>201-400</td>
<td>3”</td>
<td>3”</td>
<td></td>
</tr>
<tr>
<td>401-600</td>
<td>4”</td>
<td>4”</td>
<td></td>
</tr>
<tr>
<td>&gt;600 amps</td>
<td>Contact CLD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.10 Point of Delivery – Overhead Service

The point of delivery for self-contained metering is at the ends of the service entrance conductor extending from the mast head. An extra 18” of wire must extend beyond weather head for utility connection and neutral wire must be taped with white tape or marked by factory stripe.

A. Service Mast

Services on the gable end of the house must have the meter and the attachment point on the gable end. Meters on metal structures are to be placed on gable end of the structure to protect them from ice and snow from the roof. A snow dam must be used when no gable end is available.

Services not on the gable end of the house or building must be mast-type extending through the roof. Roof masts must be within 4 ft of the roof’s edge. Services under the eaves of sloping roofs are allowed by permission if meters can be protected. Approved protection can be provided by extending eaves, or by constructing roof cricket, or “v” roof, on the roof above the mast. Metal snow brakes or shed roofs cantilevered from the building wall will not be considered adequate protection.

EXCEPTION: Services under eaves over sixteen feet high will be allowed if proper ground clearance can be met. Services under eaves will also be allowed for slate or tile roofs. These exceptions must have approval by both CLD and L&I. Eave to conductor clearance should be approximately 12”. 
The mast shall be guyed or braced when the mast is over 24” high or the service is longer than 100 feet. If the service is to be larger than #2 triplex, guys may be required even if less than 100 feet.

B. Multiple Masts

CLD will connect the service entrance conductors from multiple masts together and supply them with single set of service drop conductors. Group multiple masts together within 24” of one another. Extend service entrance conductor from each mast to a common point near the service drop attachment. CLD will normally make the connections between customer and utility conductors unless size and/or number of conductors prevent this. Check with CLD for approval.

C. Anchor Point

Generally, service entrances must be located so that the utility service drop can be anchored to the building at only one point. These anchoring points must meet CLD strength and height requirements. The strength needed will depend on the service drop conductor size and number. Guying is required on the roof mast used as the anchor point. Contact CLD for information.

Overhead service drops will be run and attached to the anchor point by CLD. The anchor point is furnished and installed by the customer or their electrician.

Service anchor brackets attached to service masts are preferred. CLD will not anchor to PVC or EMT conduit. Housing chubs are not allowed for new construction. When used they must attach to solid framing members not fascia board, siding or sheathing.

D. Service Clearances

The anchor point must be located to provide the required clearances over buildings and ground. Clearances are shown later in this section are for reference only. Call CLD to determine design clearances based on service conductor size and length.

See the following figures for Common Clearance Requirements and applications for services fed Inside an Exterior Wall, Attached to an Exterior Wall, and from an Overhead Source.
5.11 Point of Delivery – Underground Services

1. Self-Contained Meters - CLD will terminate utility service lateral conductors in the customer supplied meter socket.

2. Instrument Rated Meters.

3. CLD will terminate utility service lateral conductors on the customer provided current transformer mounting bracket landing lugs.

4. Self-Contained Meter Modules - CLD will terminate utility service conductors on the bus of a 2 to 6-meter modules.

5. More than 6 Units - CLD will terminate utility service conductors at the main disconnect feeding several multiple meter modules.

6. For services above 1,200 amps CLD will provide a customer owned pad-mount CT metering enclosure. CLD will install the wire from to transformer to the CT enclosure and the customer will install all the wire beyond this enclosure. CLD will not install new or upgraded CT metering in transformers or on poles at the transformer location.

See the following figures for common applications of services fed from an underground source via inside an exterior wall and attached to an exterior wall. Also, line burial depth requirements and meter height placement.
TRENCH REQUIREMENTS

Customer is responsible to open and close all ditches.

- Trench lines are to be run straight as possible.
- The conduit route and distance must be **pre-approved by the CLD Representative**.
- Service Ditch.

The ditch route, width and the need for sand padding and bedding must be pre-approved by the CLD Representative.

All ditching must be inspected and approved by CLD personnel prior to backfilling and crew scheduling. Primary conductors will not be energized until the ditch has been backfilled. All ditches must be in accordance with CLD design requirements. Truck access is desirable. **Time and material charges may result from additional trips necessary for energizing or correction of facilities.**

Customer is responsible for backfilling to final grade, haul-off, and all compaction requirements, including select backfill if required. Customer is responsible for obtaining all required permits.

**State law requires all excavators to call #811 for a locate a minimum of two business days before digging** so that all underground utilities may be located and marked before trenching begins. The law requires that the ditch be hand-dug within 2 feet of a locate mark. **Extreme caution should be used.** All hand-digging must be completed prior to inspection by CLD.

Ditches may be dug to within 6 inches of a pad mount transformer or handhole. Allow more distance if soil conditions cause ditch to cave in. Extreme caution should be used. The conduit must be installed to the end of the ditch and the sweep left unattached for CLD crews to complete.

Ditches may be dug to the base of a pole to a point designated by CLD customer project coordinator.

A 3-foot depth by 2-foot width ditched area must be provided at the bottom of the meter base to allow for adequate work space.

Ditch must be in relation to final grade within 2”-4”, including all drainage areas.

**See following figures.**
5.12 Vehicle Barriers
The customer may be required to install bollards or other vehicle barriers to protect the transformers, pad mounted equipment or meter equipment if they cannot be set 5’ back from curb or are in an area subject to vehicle traffic. Contact CLD for information regarding bollard placement, spacing, and whether they need to be removable. See Figure 3.1 for Vehicle Barrier Standards.

5.13 Other Utilities
It is the customer’s responsibility to coordinate the use of a joint ditch or poles before the permanent service is connected. Clearances as required by the NESC between utilities must be met.

5.14 Exceptions Allowing Multiple Services:
Multiple services to a facility are only allowed under very limited circumstance by the NEC and require prior written approval by CLD.

6.0 RESIDENTIAL SERVICE REQUIREMENTS
For the purposes of this book, residential service is defined as an individual residence, apartment, mobile home or living unit used for domestic purposes.

6.1 Residential Service Customer Checklist
CLD has provided this checklist for the residential customer to assure that all customer work has been completed before CLD comes to connect the service.

A. Overhead Service
1. CLD has agreed with the proposed location of service entrance and meter location. (i.e. meter location with meter 4’ to 6’ up from the ground (See Service Location).
2. A service agreement with CLD has been signed by customer and returned with payment.
3. An insulated strike knob on the mast has been installed 8” below the weather head and 18” of extra wire has been left hanging out of the weather head for utility connection. Neutral wire extending from weather head has been taped with white tape for identification.
4. L&I has inspected the Service entrance, placarded the panel, and notified CLD.
5. If the mast is 24” above the roof, or the distance from the building to the CLD pole exceeds 100’, or the distance from the meter pole to the CLD pole exceeds 125”, then a back guy on the mast or meter pole is required.
6. CLD has approved the mast height.

B. Underground Service
1. CLD has approved the proposed location of service entrance and meter location (See Section 5.7 Service Location).
2. A service agreement with CLD has been signed by customer and returned with payment.
3. A #811 locate request has been called a minimum of 2 business days before digging is scheduled to begin.
4. Location of transformer and ditch route has been approved by CLD prior to digging.
5. Ditch has been inspected by CLD for proper depth and placement of conduit including sand bedding (if needed) BEFORE backfilling ditch.
6. L&I has inspected the Service entrance, placarded the panel, and notified CLD

6.2 Residential Apartment Buildings
7.0 COMMERCIAL SERVICE REQUIREMENTS

7.1 General

For the purposes of this handbook, a commercial premise is used for other than domestic living.

A single point of delivery will be provided to a commercial building. Metering will be located as close as practical to this point. See Sections 4.3 Point of Delivery and 5.7 Service Location for additional information.

Commercial Service design requirements vary widely depending on customer needs, site requirements and electrical design constraints. To determine transformer and service conductor requirements contact CLD Representative to answer your questions and ours when planning begins. Spending some extra time up front can save time, money, and minimize confusion as the project moves ahead.

7.2 Customer Responsibility to Supply and Install:

- Service entrance mast, anchor points, guying and bracing if needed.
- A single point of connection for CLD service drop or lateral conductors.
- Meter socket for a self-contained meter.
- Mounting base for meter socket & CT enclosure.
- **See Section 9.0 Metering Requirements** for specific information on the metering equipment needed for various services.
- Self-contained meter base shall have lever bypass meter socket jaws.
- Self-contained meter base shall have a lockable main breaker or lockable mechanical disconnect lever next to the meter socket.
7.3 CLD Responsibility to Supply and Install

A. Transformer(s).
B. Service conductors to point of delivery.
C. Meter(s.)
D. Utility supplies CT meter socket and CT enclosure cabinet to customer with All required Current Transformers and instrument wiring.

7.4 Delivery Point at Secondary Enclosure:

A. Customer Responsibility to Supply and Install:
   1. Conduit and conductor from the building to the secondary enclosure.
   2. Install lugs and land customer conductor on the secondary enclosure bus.

B. CLD Responsibility to Supply and Install:
   1. Transformer.
   2. Current Transformers and wiring as required.
   3. Meter.
   4. Land and install conductor between the transformer and secondary enclosure.

7.5 Building Delivery Point:

A. Customer Responsibility to Supply and Install:
   1. Contact CLD for conduit and ditch requirements.
   2. Required metering equipment. See 9.0 Metering Requirements for information on metering equipment needed for various service sizes.

B. CLD Responsibility to Supply and Install:
   1. Transformer.
   2. Current Transformers and wiring as required.
   3. Meter(s).
   4. Install and connect secondary conductor.

7.6 Self-Contained Meters

CLD will terminate service lateral conductors in the meter socket.

7.7 Instrument Rated Meters

CLD will terminate service lateral conductors in the current transformer cabinet.

7.8 Self-Contained Meter Modules

A. 2-6 Units: CLD will terminate service conductors on the bus of a 2 to 6-meter modules.
B. More than 6 Units: CLD will terminate at the main disconnect feeding several multiple meter modules.
C. Multi-Meter: Combination CT & Self-contained.

CLD will terminate in a wall mounted termination/pull box or disconnect supplying individual self-contained or instrument rated meters. See enclosure requirements in the Meter Requirements Section.
7.9 Multiple Transformers

A. Handholes

A below grade point of delivery may be allowed in some cases. Contact a CLD Representative for approval. CLD will provide and install all vaults.

8.0 Temporary or Construction Service

Typically requested for construction of new commercial and residential permanent services or the alteration of existing services. **Upon approval by L & I, the CLD will allow the temporary placement of a meter for a period not to exceed 12 months, since these services are not intended to be permanent.**

**At the end of the 12-month period, the CLD will notify the customer of the temporary service expiration and will disconnect the service.**

See following figures.
9.0 METERING REQUIREMENTS

9.1 General

Only CLD owned metering equipment will be used to provide billing information.

The customer must provide CLD with access for meter reading, maintenance, installation or removal.

Consideration should be given to the safety of CLD employees who must install, test, and read the meters on a regular basis.

A clean and clear pathway to the meter shall always be maintained.

WORK SPACE SHALL BE PROVIDED AROUND THE METERING EQUIPMENT AND KEPT CLEAR AT ALL TIMES. MINIMUM SPACE SHALL BE 15” ON BOTH SIDES OF THE METER DOWN TO GRADE. MINIMUM FRONTAL CLEARANCE IS 36” PER NATIONAL ELECTRIC CODE.
9.2 Special CLD Requirements

A. **All services require an external main disconnect.** An exception will be made for large 3-phase services, served with a dedicated pad-mount transformer bank and having a disconnect in the transformer.

B. **All disconnects shall be capable of being locked in the off position.**

C. **All commercial services will have lever meter bypass installed.**

Manual circuit closing, MCC, sockets allow the meter to be removed without interruption of the electrical service. When required they must be in working condition. Wiring in the socket must not interfere with the operation of circuit closers. MCC sockets must be approved by CLD.

9.3 Listing

All meter sockets, enclosures shall be listed by a qualified electrical testing laboratory acceptable to the jurisdiction having authority.

9.4 Location

A. Metering equipment locations are subject to the following; exceptions must be approved through the CLD.

1. All self-contained meters shall have a disconnect breaker or mechanical disconnect switch next to the meter (within 36”).

2. The meter must be located as close as practical to the delivery point.

3. Located on the line side of the service disconnect (Hot sequence).

4. Each customer premise will be supplied through a single meter.

5. At a multi-meter service point, meters will be grouped at one location with all meters located as closely as practical to the service point.

6. Meters must be installed at the service equipment and not separated by walls or partitions.

7. Located outdoors or in approved meter rooms with permission from the CLD Electric Meter Department. No metering equipment shall be installed at a service switch located in an inaccessible place such as a manhole or in a vault.

8. Readily accessible, free from vibration, corrosive atmosphere, abnormal temperatures, and well lit.

9. **Whenever the customer makes additions, or changes that enclosures the meter and prevents access, they may be required to relocate the metering equipment, at their expense, to meet CLD’s specifications.**

10. Meters must be protected from ice and water off roofs, damage from doors and materials and vehicular traffic.
a) **Any alteration to an existing meter socket is considered to be a new meter socket. Therefore, the meter base must meet the requirements of a new meter installation.**

b) Alterations include, but are not limited to: drilling new holes, enlarging holes, moving conduit, moving meter base, adding conduit fittings, replacing conduit and fittings, punching out a knockout, etc.

### 9.5 Meter Room Requirements

- Only allowed with written permission from CLD.
- Must meet all electrical and mechanical code requirements.
- Meters must be grouped together in the same room. Not separated by walls or partitions.
- Be located on the ground floor with exterior doors opening outward with direct access to meters.
- The exterior door shall be equipped with a panic bar.
- If locked, the customer shall provide a key and pay the cost for a CLD installed lock box.
- Area must be well lit with working lights and not used for storage.
- 4 feet working clearance is required in front of each meter.

### 9.6 Meter Identification

For multi-unit dwellings with a separate meter for each customer, all meter sockets must be marked. The equipment installer/electrician is responsible to provide a label with the unit number or address. A house meter for common facilities must be marked as “House Meter.” Marking must be complete before meters can be installed.

*Labels shall be of a raised or embossed type, minimum size 3/4" x 2" engraved plastic with sticky back. Letters or numbers must be a minimum of 7/16".*

Common gas and electric meters must have the same space designation marking; i.e., numbers or letters.

The building owner is responsible for proper identification of electric meters. The building owner could be held responsible for CLD costs associated with correcting billing errors caused by mixing wiring or mislabeled meters.

If two electric services serve one building or space, a warning tag must be located at each meter point indicating such. NEC Article 230.2E.

Labels, as described above, marked with voltage and phasing information are required if two or more services with different voltages or phasing are supplied to a building.

### 9.7 Security

A. Disconnect breaker, or lever, shall be lockable.
B. No conduit bodies are allowed ahead of meter.
C. All removable enclosure covers or doors, raceways or conduits containing unmetered conductors shall be sealable for locking by CLD.
D. Factory installed carriage bolts may be used to seal panel covers that do not require field removal.

E. Only rain tight enclosure doors may cover the sealed areas.

F. Sealable latches, stud and wing-nuts, or sealing screws shall be used to seal removable doors.

G. Acceptable sealing devices
   1. Stud and wing-nut assemblies, ¼ inch x 20 (minimum). The stud and associated wing-nut shall have 0.0635 inches holes.
   2. Sealing screws with 0.0635 inches holes.

### 9.8 Meter Mounting

Meter sockets and/or enclosures must be plumb and level and securely mounted to a rigid surface. Mounting to a metal siding only is not acceptable.

If meter socket is to be mounted to a post or pole, it must be mounted on C-channel securely fastened to the pole.

On stone or brick veneer, meter sockets must be flush-mount or surface-mount and not recessed behind the brick or stone.

Single meters shall be installed between 4 and 6 feet to the center of the meter above the floor or finished grade. Meter height 5’3” from center of meter glass to finished grade is preferred. Meter modules shall be installed no more than 6 feet to the center of the top meter and not less than 18 inches to the center of the bottom meter.
9.9 **Lifting Handles**

When lifting handles are required on panels and covers of enclosures, each handle shall be sized for full hand grasping, securely attached and designed to support 75 lbs. Chest type handles with a folding bale grasp are not acceptable.

9.10 **Self-Contained Metering**

9.11 **Metering Equipment and Ratings Type**

A. Instrument Transformer Metering

- Current transformers, meter, and wiring are provided by CLD.

B. Current Transformer Location

- CT's are to be mounted in an enclosure located on the building or on in a pad-mount cabinet.
- CT cabinet and meter socket shall be located on the utility line side of any customer disconnect device or breaker.

C. CT Enclosures - General Requirements

- Weatherproof.
- The conduit must enter in the bottom of the enclosure or on the side within 2” of the bottom with a rain tight fitting.
- Enclosures cannot be used as junction boxes or raceways.
- Lockable.
- Each CT metered service requires its own CT enclosure, meter enclosure and meter socket.
D. Multi-Meter: Combination CT & Self-contained

A multi-meter building served using a combination of individually mounted CT rated, self-contained, and/or meter modules requires a pulling/termination enclosure to provide a single point of delivery. Individual meters shall be located as close as physically possible, but no case more than 25 feet from the point of delivery. The utility compartment of the enclosure must meet the requirements below.

E. Notes:
1. The area below the load side lugs is reserved for utility conductors only.
2. Terminating facilities for utility conductors shall be aluminum-bodied mechanical lugs with a range accepting a single #4AWG through 750KCMIL or two #1AWG through 250 KCMIL conductors. Number of lugs for each current range is listed above.
3. Lugs shall be secured to prevent turning or misalignment.
4. The minimum pull box access opening (W) is measured between the left and right.
5. Enclosure covers shall be removable, sealable, provided with two lifting handles, hinged and limited to the maximum size of 9 sqft. Note general sealing requirements above.
F. Switchboard Metering

Switchboard Metering will only be used with special approval. This is normally used for single points of delivery with a combination of self-contained and instrument transformer rated services exceeding 1200 amperes.

- Must have EUSERC approved switchboard metering section.
- Prior to manufacture, contact CLD for approval of manufactures drawings and to determine the type of metering, size of current transformers and mounting arrangements.
- All unmetered conductors shall be in separate, sealable, and lockable compartments.
- Must have an accessible instrument transformer mounting section.
- 13 terminal socket and test switch slots if CT metered.
- 7 terminal socket if self-contained.
- Termination section approved for utility connection.
- Mechanical or compression lug.

See figures below and following for common meter connections:
Single-phase, 120/240V 3-wire

Three-phase, 120/208V 4-wire wye

Three-phase, 277/480V 4-wire wye

Three-phase, 120/240V 4-wire delta

120/208V 4-wire wye

277/470V 4-wire wye

120/240V 4-wire delta
10. CUSTOMER GENERATION REQUIREMENTS

There are two general forms of Customer generation. The first is an emergency standby system. The other is interconnected with the utility system to supply energy generated at the customers premise.

10.1 Emergency/Standby Generation

- An L&I Inspection is required for all permanent standby generation installations.
- A bypass switch guaranteeing no feedback is required.

10.2 Energy Supply (Net Metering)

Whether you’re thinking about or moving forward with the installation of an electrical generating system, CLD has put together the information you will need to interconnect to our system.

The various documents required for interconnection differed by system category. Please be sure to read all of the information, as **approvals are required from CLD before generation can be interconnected with the utility.** If you have any questions, please contact the CLD for either type of system.

Interconnection process and standards:

- Requirement A - Interconnection, Generation, Net Metering Application
- Requirement B - Net Metering Agreement
- Requirement C - Preconstruction Meeting
- Requirement D - State Electrical Inspection
- Requirement E - CLD Inspection
- Requirement F - No back feed, verification test by Line Foreman