Foreword

This illustrated Handbook for Electric Service clearly defines everyone’s responsibilities for installing new Basic, Large Basic and Temporary electric service, and the upgrade or relocation of an existing service. This handbook was developed to ensure reliable and adequate service to you, the member, and to improve communication and coordination between members, contractors, architects, engineers, civic planning groups and the Cooperative. These guidelines cover the most common situations. There may be cases when additional and/or different requirements are needed. Following these guidelines will eliminate extra phone calls and visits to the job site, saving money for electricians, property owners, developers, and the New Hampshire Electric Cooperative.

Details on each type of new service are provided in this handbook. For details, simply turn to the Section that describes your situation. If temporary service is needed while a residence is being constructed, see Temporary Service on page 1. For information on a Basic Service, turn to page 5.

For information regarding the installation of permanent service for multifamily and nonresidential services such as commercial buildings, condominium complexes, apartment buildings, and mobile home parks, see Large Basic Service on page 16.

To get answers to general billing or technical questions and company information, call the Cooperative Member Call Center at 1-800-698-2007.

Be sure to review the entire handbook to ensure you have covered all areas of your service requirements.

Important Information

Wiring intended for connection to the Cooperative system must be in accordance with all applicable local ordinances, State guidelines and/or Federal requirements such as the National Electrical Code (NEC). It is also strongly recommended that you use a licensed electrician whenever dealing with electricity for any reason. No requirement in the handbook is intended to supersede or conflict with the standards and regulations of the National Electrical Code or with any state or municipal law, rule or ordinance now in force or hereafter enacted.

Also note that services for fire pump equipment are not covered in this manual and must be coordinated with NHEC engineering staff on a case by case basis.
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For the latest information regarding NHEC’s Schedule of Fees, Charges and Rates, or Terms and Conditions visit:

www.nhec.com/rates_summaryofrates.php

For the latest listing of NHEC-approved meter sockets go here and click on the List of Approved Meter Sockets:

www.nhec.com/education_incentiveprograms.php

For information on Net Metered Service call Engineering.

This Handbook for Electric Service is provided by NHEC as an aid to help members and others better understand the services available from NHEC. This Handbook for Electric Service may summarize or explain certain rights and responsibilities of NHEC, its members and others. This Handbook for Electric Service is not a contract and is not intended to limit or expand any rights or responsibilities of NHEC, its members or others. Readers are encouraged to refer to the actual text of NHEC’s Bylaws, NHEC’s Terms and Conditions, NHEC’s Tariffs, or any relevant contract.
### New Hampshire Electric Cooperative
Service Territory & District Locations

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*District serving area depends on pole location. If you have further questions concerning your service territory, please call the Cooperative at 1-800-698-2007.
New Service Check Sheet

What the member should establish before contacting the NHEC:

- A foundation in place.

Information NHEC will require:

- Application (page 27).
- Load data or service entrance size (page 28).
- Commitment to either an overhead or underground service.
- Date service is needed.
- A location for the temporary service (subject to NHEC approval).
- A location for the permanent service (subject to NHEC approval).
- Easement info (book and page # of deed, tax lot #, bordering lot ownership with applicable tax lot #’s).

Check these items before calling for a construction date:

- Have you provided the Cooperative with all the necessary documentation such as an easement and application?
- If you signed an easement, did you use black ink and have it notarized?
- Have you made all necessary prepayments?
- Have you (or your electrician) set the service up as the applicable NHEC specification in this handbook shows?
- Is the service located as you and our Field Representative discussed?

Please understand that you will be billed if, upon your request for a service connection, an NHEC line-crew makes a visit to the job site and is unable to make a connection or finds the entrance does not meet NHEC specs.

Policies

New Hampshire Electric Cooperative, Inc. strives to render dependable electric delivery service in accordance with the Tariff for Delivery Service, Transition/Default Power Service and Services to Competitive Suppliers. Application for delivery of electric service may be made by visiting or calling our main business office at 1-800-698-2007.

Whether or not a signed application for service is made by the member and accepted by NHEC, the rendering of the service by NHEC and its use by the member shall be deemed a contract between the parties and subject to provisions of the Tariff.

NHEC reserves the right to reject any application for service made by, or for the benefit of a former member who is indebted to NHEC for delivery of electric service previously furnished to them. NHEC reserves the right to reject any application for service if the amount or nature of the service, or the distance of the premises to be served from an existing suitable line, or the difficulty of access thereto is such that the estimated income from the service applied for is insufficient to yield a reasonable return to NHEC, unless such application is accompanied by cash payment.

The applicant for service will provide, without expense or cost to NHEC, the necessary permits, consents, or easements for a satisfactory right of way for the erection, maintenance and operation of a line, including the right to cut and trim trees and bushes wherever necessary along private property.

The installation of a new service is a joint effort between the owner, the contractor, and NHEC. This handbook is provided to you, the member, to help you become aware of our policies and practices. This should ensure a timely and cost-effective installation.
**Introduction**

This Section provides information for installing a new temporary service.

Temporary service is defined as a means of supplying electricity to a site **for less than 12 months**. Usually a temporary service is installed to provide power during the construction phase of a project, while provisions are being made for permanent power.

**Getting started**

Installing temporary new electrical service to a home/building is a joint project between you (the member) and the Cooperative.

The Cooperative is responsible for installing the service lines to bring power to the temporary residence/building and for installing a meter in the meter socket.

The member needs to complete several items before the Cooperative can energize temporary service such as:

- Call the Cooperative at 1-800-698-2007 to begin the service order process.
- Install the required service equipment and structure.
- An on-site meeting with a Line Design Technician or other Cooperative representative.
- Obtain an electrical inspection and approval of the service equipment and structure. The call for this inspection is made by the member or the electrical contractor.
- After the electrical inspection is complete, call the Cooperative’s Engineering Department to request that service be energized.

The remainder of this Section will assist with this process.

**Overhead or underground service?**

The two types of temporary services are overhead and underground. If the existing power system in the area is a series of poles as shown in Figure 1 on page 6, the area is served overhead, and the temporary service will typically be overhead. If the area is served underground, items such as those shown in Figures 2, 3 and 4 on page 6 should be visible. In this case, the temporary service will be underground.

If none of these items (Figures 1 through 3) shown on page 6 exist in the area, or for service other than 120/240 volts, 100-400 amps, single phase, or for answers to questions, call the Cooperative at 1-800-698-2007.

**Inspections and codes**

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

Once the member’s service equipment is installed, the state, or the city with jurisdiction, may require that the installation pass an electrical inspection before the Cooperative can complete the connection to the electrical system. The member is responsible for requesting and passing this inspection.

**Underground locates**

Three days prior to any trenching or excavation work, the member is required to call for underground utility locates. Underground utility locates are available by calling the Dig Safe Underground Location Center at 1-888-344-7233. The Center has established a system called the “One-Call” system. One call to Dig Safe will notify the utilities, or a locating service, that locates are required. However, in some areas, not all utilities are members of the One-Call system. In those areas, the member must contact the utilities individually.

There is **no charge** for this service.

**To get a locate, call the Utilities Underground Location Center One-Call number, at 1-888-344-7233.**
A color code system has been established to identify each utility so everyone can see what has been located. The color codes are:

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<tr>
<th>Color</th>
<th>Utility</th>
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<tbody>
<tr>
<td>Red</td>
<td>Electric</td>
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<tr>
<td>Yellow</td>
<td>Gas/Oil</td>
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<tr>
<td>Orange</td>
<td>Telephone/Cable TV</td>
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<tr>
<td>Blue</td>
<td>Water</td>
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<tr>
<td>Green</td>
<td>Sewer</td>
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<tr>
<td>White</td>
<td>Area to be located</td>
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Any digging within 24 inches of either side of the location markings must be done by hand.

**Meter socket requirements**

For the latest listing of NHEC-approved meter sockets, go here and click on the List of Approved Meter Sockets:

www.nhec.com/education_incentiveprograms.php

**Temporary Overhead Service**

The process and costs of obtaining temporary overhead service varies, depending upon the location of the Cooperative’s existing facilities. After meeting with the Co-op Representative in the field, the member installs the temporary service equipment and structure, has it inspected, and calls the Cooperative at 1-800-698-2007 to discuss fees and to order service. Once the above items are completed, service will usually be connected as soon as all required documentation, prepayments, and permits have been completed, and scheduling allows.

For help with technical questions about service in the area, call the Cooperative’s Engineering Department.

**Meter location**

A temporary meter service structure should be located on the property within 50 feet of the power pole that will serve the site. This limitation ensures that the temporary service pole can withstand the weight of the conductor. If a distance greater than 50 feet is required, contact the Cooperative’s Engineering Department for approval prior to construction. A taller post with additional bracing might be required. In all cases the post should be set in the ground a minimum of 3 feet deep.

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

- The path that the service line will take should not cross property belonging to others.
- If the service line will pass through trees or brush, a path for the line must be cleared to allow Cooperative service personnel to run the line and to allow lines to hang without contacting trees or limbs. Maintaining this clear path is the member’s responsibility.
- The service line path should avoid areas where vehicular traffic will occur, unless the temporary service post height is increased to provide adequate clearance. See Spec. TS-1 on page 33 for clearance requirements.

The Cooperative will answer questions and advise on special situations.

**Clearance requirements**

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

The NEC and NESC require the lowest point of a service conductor to be at least 12 feet above the ground. The bottom of the drip loop must be a minimum of 10 feet above the ground. Figure 6 on page 10 shows the clearance requirements for the types of terrain most commonly encountered.

It is not the member’s responsibility to string the conductor, but the point of attachment at the service structure must allow the Cooperative to install the conductor and maintain required clearances.

For further details, consult the current issue of the NEC, or contact the state or local electrical inspector for the area.
Service installation
The following items must be completed by the member before the Cooperative can energize service:

- Contact a Cooperative representative to request a temporary service.
- Obtain an electrical work permit from the inspecting agency.
- Install temporary service structure and equipment to Cooperative Specifications.
- Obtain an electrical inspection.

After these items are completed, call the Cooperative’s Engineering Department to announce that the installation has been inspected and is ready for temporary service.

Spec. TS-1 on page 33, illustrates the recommended temporary overhead service installation. The specifications shown are the minimum acceptable.

Do not deviate from the installation standards without approval from the Cooperative.

Temporary Underground Service
Temporary underground service is available where the existing power facilities are installed underground. If there is power in the area, but the power lines are not visible, the power system is likely to be installed underground.

The process and cost of obtaining temporary underground service varies, depending on the location of existing power facilities. After a field meeting with the Co-op Field Representative, install the meter socket, service pedestal and service wire (see Specs. UTS-1, page 41 and UTS-2, page 42), obtain an inspection, and call the Cooperative to connect service.

For help with questions about Cooperative facilities at the job site, contact the Cooperative’s Engineering Department.

The cost for temporary service depends on the extent of special engineering required.

Meter location
Locate the meter pedestal on the property no more than 5 feet from the transformer, stubup, or handhole.

If a distance greater than 5 feet is necessary, contact the Cooperative Representative for approval prior to construction.

Temporary service installation
The following items must be completed prior to energizing the service:

- Contact the Cooperative and request a temporary service.
- Obtain an electrical work permit from the inspecting agency.
- Locate underground service (call Dig Safe).
- Install the meter pedestal and meter socket in the appropriate location.
- Provide the appropriately sized conductor from the meter socket to the Cooperative’s connection point. Leave 5 feet of extra wire at a stubup or handhole, and 10 feet out of conduit at the transformer vault. Consult the NEC for the appropriate wire sizes.
- Obtain an electrical inspection where required by the local authority.
- Cover wire leading to the connection point, except where Cooperative personnel will be splicing their wire to the member’s.
- Call the Cooperative to announce that the installation has been inspected and is ready for temporary service.

Trenching requirements
It is the member’s responsibility to provide a buried cable from the meter base to the Cooperative’s transformer or handhole. The cable and conduit installed by the member should be sized per the NEC and have a minimum cover of 36 inches.

If the connection point is a handhole or transformer, the member trenches to the nearest side and leaves the wires exposed. If any other conductors are discovered while digging, leave them covered. If further trenching is required, Cooperative personnel will complete it.
Remember to call Dig Safe at 1-888-344-7233 and request buried cable locations 72 hours before digging. Any trenching within 24 inches of existing underground facilities must be done by hand.

Specs. UTS-1 and UTS-2, on pages 41 and 42, illustrate the recommended temporary underground service. Note the dimensions shown. Deviations from this recommended standard can result in a delay in receiving service, or in service being denied. Contact the Cooperative for answers to any questions.

New Service Checklist

To improve our efficiency, we ask that you review the information in this handbook thoroughly, including the service specifications. Reviewing this important information before calling us for connection will avoid unnecessary delays and/or billing. An unsuccessful visit to connect the service uses valuable time and resources. Please understand that you will be billed if, upon your request, the Cooperative makes a visit to the job site and is unable to make the connection.

Please review the following checklist and ensure you have completed all applicable steps before calling us for your service connection:

- Have you provided the Cooperative with all necessary documentation such as an easement and application?
- If you signed an easement, did you use black ink and have it notarized?
- Have you made all necessary up-front payments?
- Have you (or your electrician) set the service up as the applicable NHEC specification in this handbook shows?
- Is the service located as you and our Field Representative discussed?

If you have any questions concerning any of these items, please call the Cooperative at 1-800-698-2007 or the Field Representative for your area.
Basic Service

Introduction

This Section provides information regarding a new electric Basic Service for a single phase service less than or equal to 400 amps, and a three phase service less than 50kW. It also includes helpful information from the National Electrical Code (NEC). The Cooperative Specifications for Electric Service are included at the back of the handbook.

This Section answers common questions, such as:
- Where should the meter socket be installed?
- How tall does the service mast have to be?
- What are the size requirements for the meter socket?
- What does the member have to do to get underground service?
- How does the member install a meter socket?
- How are existing underground utilities located before digging starts?

Getting started

Installing new electrical service to a home is a joint project between you (the member) and the Cooperative.

The Cooperative is responsible for installing the service lines to bring power to the building, and for installing a meter in the meter socket.

The member is responsible for:
- Setting up the temporary service if one is required (See Temporary Service Section).
- Choosing between overhead or underground service.
- Obtaining the meter socket and service entrance.
- All electrical wiring in the building including service entrance facilities.
- Obtaining any required easements, permits and inspections.
- Payment to the Cooperative for all fees.
- Specifying the size and type of service.
- Submitting a Load Data sheet.
- Locating the meter socket in a mutually agreed upon location with the Cooperative.

Setting up a new service

To set up a new service, call the Cooperative at 1-800-698-2007. A representative will request general billing information, discuss fees, and the address for the new service. (New addresses are obtained from the United States Postal Service).

An on-site meeting with a Cooperative Field Representative can be scheduled once this information is obtained and the necessary fees are paid.

Please bear in mind that because the Cooperative has a limited workforce, and a demanding workload, meeting with a Field Representative to design your service can take two weeks or longer and then scheduling the construction could add additional time. Please contact NHEC for electrical service as soon as your building plans are finalized and have been approved by the local authorities.

Please contact the phone company covering your area for service at the same time you request electrical service.

Overhead or underground service

Two types of electrical service are available — overhead and underground. Underground service is available to everyone. Overhead service is available if the Cooperative’s system is overhead, and if local ordinances allow it. It is the member’s responsibility to be aware of any applicable local codes and ordinances.

To determine if the electrical system already installed in the area is overhead or underground, check the facilities along the road. If the power system is overhead, a series of poles similar to Figure 1, page 6 will be visible. If the power system is underground, there will be items like those in Figures 2 through 4, page 6.
If the system is overhead, and the new service will be overhead, the requirements for overhead services can be found in the Overhead Service Specification section.

If the system is overhead, but the new service will be underground, those requirements are in the Underground Service section.

If the system is underground, the only option is an underground service. Refer to the Underground Service portion of this Section for those specific requirements.

For help determining which type of system is installed in your area, call the Cooperative’s Engineering Department.

**Requesting Service**

Before new service is installed, the member needs to contact the Cooperative to request that a service order be created. Service orders will link the Cooperative’s field personnel with the information they need to install permanent service.

The Cooperative service representative may ask the following questions:

- Will a temporary service be needed?
- What is the service for (home, barn, shop, etc.)?
- Whose name will the service be under?
- What is the address of the new service?
- Is the property cleared?
- Is the foundation in and approved, and is there an approved septic plan for this site?
- What is the daytime phone number of the property owner?
- What is the name and daytime phone number of the electrician?
- What is the name and daytime phone number of the building contractor?
- Have you had service with the Cooperative before?
- The residence has how many square feet?
- Will the house heat be electric?
- Will the water heater be gas or electric?
- What size service panel will be installed?
- When will the site be ready for service?
- Will the electric service be overhead or underground?
- If overhead, is it allowed by local ordinances and covenants?
- Is the existing power system in the area overhead or underground?
- What is the pole number of pole nearest the house site?
- Is this service to be located on a scenic road or within a historic district?
• What is the nearest neighbor’s name or meter number?
• If the existing system is overhead and the new service is to be overhead:
  - Is the new meter location less than 100 feet from the nearest power pole?
  - Does the pole have a transformer on it? (See Figure 1.)
  - Will the service line cross property owned by anyone else?
• If the existing power system is overhead and the new service is to be underground:
  - Is the new meter location less than 300 feet from the nearest power pole?
  - Does the pole have a transformer on it? (See Figure 1.)
• Is the existing system underground? (Only underground service is available in this case.)
• Is the new meter location less than 300 feet from the nearest Cooperative transformer? (See Figure 2.)

**Inspections and codes**
This handbook should be used only as a guide. It does not cover all federal, state, and local code requirements. It is the member’s responsibility to ensure the project complies with the most recent issue of the National Electrical Code and any other federal, state, or local codes that apply.

Once the member’s service equipment is installed, the state, or the town with jurisdiction, may require that the installation pass an electrical inspection before the Cooperative can complete the connection to the electrical system. The member is responsible for requesting and passing this inspection.

**Easements, licenses and permits**
It is the responsibility of the applicant to provide the Cooperative with the necessary permits, consents or easements needed to construct a line, without expense to the Cooperative. Any private property that the Cooperative crosses to provide service to an applicant will require an easement. The applicant must pay all recording fees.

**Contacting other utilities**
New construction typically involves the installation of telephone cables, cable television cables and natural gas lines, as well as power cables. It is the member’s responsibility to notify each utility that will provide service to the home. Check the local phone book for their numbers. For each utility, note the contact name and phone number, and let each utility know which other utilities will be providing new service.

**Service ratings available**
Several sizes of services are available for the Basic Service.

The size of service depends upon the size of the home or business and the power requirements of the appliances and equipment installed. The Cooperative does not determine the size of the member’s service.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Ampere Rating</th>
<th>Typical Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>120/240*</td>
<td>100 Amps**</td>
<td>Small Sized Homes</td>
</tr>
<tr>
<td>120/240</td>
<td>200 Amps</td>
<td>Medium Homes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(most common size service)</td>
</tr>
<tr>
<td>120/240</td>
<td>400 Amps</td>
<td>Large Homes</td>
</tr>
<tr>
<td>120/208</td>
<td>&lt;50kw</td>
<td>Small Businesses</td>
</tr>
<tr>
<td>277/480</td>
<td>&lt;50kw</td>
<td>Small Businesses</td>
</tr>
</tbody>
</table>

*120/208 may be supplied at the discretion of the Cooperative.
**The member may not install a service panel or meter socket that is rated less than 100 amps; the service line and meter the Cooperative installs will be sized for a 200 amp service. If the new service is underground, it will be 200 amps; the meter socket must meet the dimensional requirements for a 200 amp underground meter socket.

**Meter location**
The member must install the meter socket where it will be accessible to Cooperative personnel. Meter socket locations require prior approval by a representative of the Cooperative.

The requirements for a properly located meter socket are:
• It must be outside.
• It must be located on the front one-third of the house closest to normal public access and Cooperative service point.
• It must be located in an area that is not subject to being fenced.
• It must be located on a structure that is owned by the member.
• If located under eaves with less than an 18 inch overhang, meter will require a shelter over it to prevent ice damage.
The reasons for these requirements are:

- So meter readers can read the meter in a safe, cost effective manner.
- So the Cooperative can efficiently maintain the meter.
- So Cooperative employees can stay out of the member’s backyard.
- If there is a fire or other disaster, the Cooperative can disconnect service.

Removing and installing meters

Only personnel who are qualified and authorized by the Cooperative are permitted to remove and install meters. In special circumstances, exceptions may be granted to qualified electrical contractors by contacting the Cooperative’s meter department, service center supervisor, or a designated representative. **Note: With some types of meter sockets, removal of the meter does not de-energize the member’s service.**

Underground locates

Seventy-two (72) hours prior to any trenching or excavation work, the member is required to call for underground utility locates. Underground utility locates are available by calling the “Dig Safe” Location Center. The Center has established a system called the “One-Call” system. One call to the Dig Safe Location Center will notify the utilities, or a locating service, that locates are required. However in some areas, not all utilities belong to the One-Call system. In those areas the member must contact the utilities individually. **This service is free.**

To locate underground services, call the Utilities Underground Location Center One-Call number at **1-888-344-7233.** Be sure to have the nearest pole number to give to Dig Safe when you call.

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

<table>
<thead>
<tr>
<th>Color</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Electric</td>
</tr>
<tr>
<td>Yellow</td>
<td>Gas/Oil</td>
</tr>
<tr>
<td>Orange</td>
<td>Telephone/Cable TV</td>
</tr>
<tr>
<td>Blue</td>
<td>Water</td>
</tr>
<tr>
<td>Green</td>
<td>Sewer</td>
</tr>
<tr>
<td>White</td>
<td>Area to be located</td>
</tr>
</tbody>
</table>

Any digging within 24 inches of either side of the location markings must be done by hand.

Grounding

All meter sockets, enclosures and conduit must be bonded and grounded in accordance with Articles 230 and 250 of the latest edition of the NEC. When self-contained meter sockets are used, the neutral conductor must be connected to the neutral terminal in the socket.

Basic Overhead Service

General requirements

The following checklist will assist in preparing for the installation of overhead service. After the member has completed these items, the Cooperative will install the service line and meter.

- Check if any local ordinances or covenants prevent the installation of an overhead service.
- Determine an acceptable location for the meter socket.
- Ask the Cooperative where the service line will originate from. Call the Engineering office, and arrange a field meeting to review the service installation and choose a mutually agreeable meter location.
- Provide a clear path from the Cooperative’s pole to the member’s service location.
- Install the service equipment.
• Install the service entrance conductors, with 36 inches left exposed at the weatherhead. See Figure 5 below.
• Verify that the service height requirements have been met. See Cooperative Service Specifications (Specs) on pages 30-57.
• Have the town or state inspect the service equipment.
• Make sure service location is at finished grade and readily accessible.
• Call the Cooperative’s Engineering Dept. for arrangements to have service hookup.

**Getting started**
The first step when installing new overhead service is to contact the Cooperative at 1-800-698-2007 to begin the service order process.

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

Another factor to consider when choosing the location for the meter socket is what types of terrain the line will be crossing.

**Service requirements**
A service is defined by the National Electrical Code as “conductors and equipment for delivering energy from the electricity supply system to the wiring system of the premises served”. The member is responsible for the installation of the service entrance up to and including the weatherhead. All of the service entrance specifications are shown in the Service Specifications section of this book. The most common form of service entrance installation in the NHEC service area is shown in specification SE-1, page 34. Also, see Figure 5 for typical installation.

**Height requirements**
The top of a service entrance must be at least 15 feet above final grade to maintain minimum clearances over the property. Additional height may be required depending upon the location and type of structure or terrain which the service line passes over. Figure 6, page 10, illustrates some of the minimum clearances that must be maintained.

Service lines passing over the roof of another structure, but not attached to that structure, must maintain the minimum clearances shown in Figure 7, page 10. Service lines passing over a deck must maintain a minimum clearance of 11 feet. See Figure 7, page 10.
Members with questions about the proper height of a service entrance are advised to contact the Cooperative’s Engineering office for guidance.

**Clearances from building openings and gas meters**

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 12 on page 18.

**Service mast requirements**

A service mast consists of a steel conduit that runs vertically from the top of the meter socket through the roof. It contains service entrance conductors and typically supports one end of the service line. Service masts are necessary when installing some overhead service, and are installed by the member or the electrical contractor.

The requirements for the installation of a service mast are covered in the NEC, and Cooperative Spec. SE-4, page 37. Some common specs or requirements are described next.

The NEC also requires that the service mast maintain minimum clearances above the roof. The clearance required depends upon the slope of the roof, and whether or not the service line is attached to the structure. Specification SE-4 in the rear of this booklet is one example of a service mast installation with the service line attached to the mast. For other options and details consult the NEC.

Additional mast supports, typically a guy or a brace, are required for any service line over 50 feet in length. Guys and braces are installed to prevent the weight of the service line from pulling the service mast away from the house. Further information regarding guying and bracing service masts is available in the NEC, or by contacting the Cooperative.
Additional mast supports are required when:
- The service line is over 50 feet long.
- The top of the service mast is more than 26 inches above the roof.

See Figure 8 for an example of a service mast guy.

**Figure 8 Service mast guying**

**Service equipment installation requirements**
After determining the meter socket location, the service route, the height of the service mast, and the size of the service equipment (100 amps, 200 amps, or 400 amps, etc.), installation of the service equipment can begin.

The equipment will be installed per Figure 9. Deviations require prior approval by the Cooperative.

Once the member has installed the meter socket and mast, the next task is to install the service entrance conductor. The service entrance conductor is the wiring that connects to the top lugs in the meter socket and runs upward through the service mast. The service entrance conductors must be sized according to the NEC and to the rating of the meter socket. When installing the wire, leave at least 36 inches of it exposed at the end of the weatherhead to allow the Cooperative to connect the service line to it. When installing the meter socket, make sure the center of the meter will be between 5 and 5 1/2 feet, **above finished grade**.

For help with the installation of service equipment, consult the NEC, call the inspecting agency for the area, or contact an electrical contractor.

**Manufactured homes**
When installing overhead service to a manufactured home (**not a mobile home**), service equipment can be installed one of two ways:

1. On a Cooperative-owned meter pole, see specification SE-2 on page 35, or
2. On the manufactured home, if both of the following conditions are met:
   a. The manufacturer installed the service equipment at the time the home was built.
   b. The service equipment meets the meter socket requirements (see Figure 9 below) for 100 and 200 amp sockets.

**Figure 9 Surface-mounted meter socket**
Meter sockets installed on manufactured homes must:

- Be located on an outside wall of the home.
- Be located on the front one-third of the home closest to normal public access, and Cooperative service point.
- Be between 5 and 5 1/2 feet above finished grade to the center of the meter.
- Be outside of a walkway.
- Be outside an area subject to being fenced.

And

- Meter location must be mutually agreed upon with the Cooperative prior to installation.
- The top of the service mast must be in compliance with the latest versions of the National Electrical Code. For typical height requirements see Figure 7 on page 10.

**Basic Underground Service**

**General requirements**

The following is a checklist for use as a guide when preparing for the installation of underground service. Once the member has completed these items, the Cooperative will install the service line and meter.

- Locate the origination point of the service line by meeting with a Cooperative Field Representative. Also determine an acceptable location for the meter socket.
- Dig a trench from the meter socket to the location where the service line will originate. See Page 38 in the back of this booklet.
- Provide conduit and pull ropes according to Cooperative specifications. See Installation Requirements for Underground Conduit Systems on Page 38.
- Install all member-owned service equipment.
- Have the Cooperative inspect the installation while the trench is still open and have the town or state inspect as required. The Cooperative requires a 24-hour notification.
- Call the Cooperative to have service connected when complete.

**Getting started**

The first step when installing new underground service is to contact the Cooperative at 1-800-698-2007 to arrange for a field visit to discuss the service requirements.

Next, determine the location of the meter socket. As stated previously, the meter socket should be located outside and on the front one-third of the building closest to normal public and Cooperative access. The location of the meter must be a mutually agreed upon location between the member and the Cooperative.

When choosing a meter socket location be sure to consider the types of terrain where the service line will be buried. The Cooperative is responsible for repairing the service line if it ever fails. The installation is subject to being dug up at some time in the future. Because of this, it is in the member’s best interest to be sure the service line route can be easily reached and excavated.

The member must provide and install conduit. The conduit must be at least three-inch gray, electrical grade. Conduit in the trench should be at least Schedule 40, buried 36 inches deep. Any service conduit crossing under a road shall be Schedule 80. Any conduit for riser material will be Schedule 80 or galvanized steel. White water pipe or sewer pipe is not acceptable. Gray conduit signifies that electrical, or communications wires are inside. Consult the specifications in the back of this handbook.

All member-installed continuous conduit runs must not contain more than 180 degrees of installed factory sweeps. Conduit runs of more than 10 feet must have a pull rope installed in the conduit. Rope must be polypropylene, 1/4 inch in diameter.

**Trenching requirements**

The member must provide a trench from the meter socket to the pole or device where the service line will originate. The trench must be free of all rocks and construction debris. See the Installation Requirements for Underground Conduit Systems on Page 38. The trench must be a minimum of 5 feet from septic tanks and a minimum of 10 feet from a drain field.

**Remember:** Call Dig Safe before you dig. 1-888-344-7233
Service equipment installation requirements

After determining the meter socket location, the service line route, and the size of the service (100 amps, 200 amps, 400 amps), the next step is to install the service equipment.

This equipment will be installed per Figure 10A. When installing service equipment, make sure the meter socket is located so the center of the meter will be between 5 and 5 1/2 feet above finished grade, and the service entrance conduit has only one 90 degree sweep.

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

<table>
<thead>
<tr>
<th>Service Size</th>
<th>Conduit Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-200 Amps</td>
<td>3-inch Schedule 40 or 80 for use in trench below grade. 3-inch galvanized steel conduit Schedule 80 gray PVC for all riser conduit.</td>
</tr>
<tr>
<td>201-400 Amps</td>
<td>4-inch conduit required, gray Schedule 80 PVC, or 4-inch galvanized steel conduit is acceptable.</td>
</tr>
<tr>
<td>Over 400 Amps</td>
<td>The Engineering Department will determine the required number and conduit size.</td>
</tr>
</tbody>
</table>

If there are questions about any of the options, consult the NEC, contact an electrical contractor, the Cooperative, or the inspecting agency.

Manufactured homes

For underground service to a manufactured home, service equipment can be installed one of two ways:

1. On a member-owned pedestal, or
2. On the manufactured home, if both of the following conditions are met:
   a. The manufacturer installed the service equipment at the time the home was built.
   b. The service equipment meets the requirements listed below. Meter sockets installed on manufactured homes must:
      • Be located on an outside wall of the home.
      • Be located on the front one-third of the home closest to normal public access.
      • Be between 5 and 5 1/2 feet above finished grade.
      • Meet the Cooperative’s size requirements.
**Meter Requirements**

**General**
This Section provides requirements for the metering equipment that the member must provide. Follow these requirements to avoid a delay in hooking up your service. If there are additional questions about this information, please call the Cooperative’s Engineering Department.

**Service rating options**
As stated on page 7, metering equipment requirements for stand alone structures (not apartments, condominiums or strip malls) are based upon the following single-phase service ratings:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Ampere Rating</th>
<th>Typical Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>120/240</td>
<td>100 Amps</td>
<td>Small Home or Business</td>
</tr>
<tr>
<td>120/240</td>
<td>200 Amps</td>
<td>Medium Home or Business</td>
</tr>
<tr>
<td>120/240</td>
<td>400 Amps</td>
<td>Large Home or Business</td>
</tr>
<tr>
<td>120/240</td>
<td>Over 400 Amps</td>
<td>Very Large Home or Business</td>
</tr>
</tbody>
</table>

**Grounding requirements**
All meter sockets, enclosures, and conduit must be bonded and grounded in accordance with the NEC.

**Clearance requirements**
The member must provide and maintain the following clearances around all meter installations:

- The center of the meter must be between 5 and 5 1/2 feet above finished grade.
- A working space of 36 inches wide by 36 inches deep is required around the meter. See Figure 11. This working space is to be kept clear of any obstructions including landscaping.
- Metering equipment must remain accessible.
- Propane device or equipment must be 36 inches/3 feet minimum away from metering equipment.
- Must meet the National Electrical Code clearance requirements.

**General requirements**
The member is responsible for providing and installing all equipment other than:
- The meter, and
- The service conductors to the weatherhead for an overhead service.

**Meter socket requirements**
The meter socket is purchased and installed by the member and must meet the following general requirements. Additional requirements for 200 and 400 amp services are listed later in this Section. The meter socket must:
- Be NHEC approved for application.
- Be UL (Underwriters’ Laboratory) approved for application.
- Be rated for exterior use, and be raintight according to NEMA-3R.
- Have all unused openings tightly sealed from the inside of the socket.
- Be plumb and securely fastened to the supporting structure.
- Be approved by New Hampshire Electric Cooperative (see approved listing at www.nhec.coop).
200 Amp Service

Basic single-phase service
The 120/240 volt, 200 ampere service is the most common service, and is typically installed on homes and some small businesses with a living space of less than 2,500 square feet. However, it is the member’s responsibility to determine the electrical requirements and to notify the Cooperative of the size service needed.

Electrical generation
More and more people are considering an electrical generator for emergency use in their buildings. If a generator is being considered the NHEC Engineering Department must be made aware of this. Generators can be very helpful in an outage situation, but can also be lethal to the linemen that are trying to repair the line if that generator is not properly installed.

If a generator is to be part of your plans, a Double Pole, Double Throw Switch needs to be made part of the installation. In the specification section of this handbook, beginning on page 30, you will find a diagram (DPS-1) meant to illustrate a typical double pole, double throw switch installation for use with an emergency generator. Also included on page 29 is a “Back-up Generator Request Form” for you to fill out. If you have further questions, call 1-800-698-2007.

Realizing that most generators are not large enough to carry the load demanded by all of your building’s requirements, it is suggested that only those circuits needed in an emergency be isolated in a separate fuse box or breaker panel. This would normally include your heating equipment and one lighting circuit. As indicated by the diagram, this fuse box or breaker panel could be fed from either your main switch or from a generator.

If you do have a generator large enough to carry the entire load of your building, the main switch may be connected to the load side of this double throw switch. The feed lines to this switch would then be from your generator or directly from the NHEC meter.

We urge you to contact an electrician to determine the best generator for your installation.

New Service Checklist

In order to serve you in the most efficient way possible, we ask that you review the information in this handbook thoroughly, including the service specifications. Reviewing this important information before calling us for connection will avoid unnecessary delays and/or billing. An unsuccessful visit to connect service uses valuable time and resources. Please understand that you will be billed if, upon your request, the Cooperative makes a visit to the job site and is unable to make the connection.

Please review the following checklist and ensure you have completed all applicable steps before calling us for your service connection:

- Have you provided the Cooperative with all necessary documentation such as an easement and application?
- If you signed an easement, did you use black ink and have it notarized?
- Have you made all necessary up-front payments?
- Have you (or your electrician) set the service up as the applicable NHEC specification in this handbook shows?
- Is the service located as you and our Field Representative discussed?

If you have any questions concerning any of these items, please call the Cooperative at 1-800-698-2007 or the Field Representative for your area.
Large Basic Service

Introduction

This Section applies to members requiring new Large Basic electric service installations, greater than 400 amps single phase and greater than 50kW three phase. This Section provides most of the information and requirements that will be needed, but it does not cover all possible standards and specifications required by all utilities, state, federal, and local codes. For additional information, contact the Cooperative, the local government agency, or state inspector. Engineering, scheduling, and construction of the work will vary depending upon the complexity of the job as well as the current workload.

General information

This handbook contains material on new Large Basic Service. The material in this Section applies to:

- Very large homes.
- Commercial buildings.
- Apartment complexes.
- Multifamily wells.
- Condominium complexes.
- Mobile home parks.
- Barns and outbuildings.

If a temporary service is needed during the construction of the facility, see the Section regarding, “Temporary Service.”

Before a permanent service is energized, the member must complete the following:

- Select between overhead and underground service.
- Install required service equipment and wire.
- Obtain an electrical inspection from your local governmental agency.
- Call the Cooperative to request that service be energized.

If the type of service needed is not addressed in this handbook, call the Cooperative.

Getting started

Service can be initiated for the project by calling the Cooperative at 1-800-698-2007. The representative will request the member’s name and address, and may send an “Application for Service,” and a “Request for Easement.” Complete the appropriate forms, and include a copy of each of the following items, if applicable, with the application and easement:

- Legal description of the property.
- Title insurance policy, recorded warranty deed, or real estate contract.
- Landscaping plan.
- Water main plan.
- Sewer main and profile plans.
- Road and storm drainage plan.
- Road cross section plan.
- Street light requirements.
- Electrical load.

Several of the above plans may be included in one drawing.

After returning the application and plans, the Cooperative Engineer assigned to the project will begin working on it, based upon the requested schedule.

Service Types

The following standard types of services are available for Large Basic services:

Single-phase:
- 120/208 volts, 3 wire* over 400 amps
- 120/240 volts, 3 wire** over 400 amps

Three-phase:
- 120/208 volts, 4 wire over 50kw
- 277/480 volts, 4 wire over 50kw

* Available only if 120/208 volt secondary is existing at the location at the time of application for service.

** Available for loads up to a maximum demand of 100kW. Larger loads may be served if determined feasible by the Cooperative’s Engineer.
Locates
If trenching or excavating is required, underground locates are required 72 hours prior to digging. To obtain locates, the member calls Dig Safe at 1-888-344-7233. Dig Safe will notify each utility, or a locating service, who will locate the underground facilities in the area. This service is free.

The color codes for locates are:

<table>
<thead>
<tr>
<th>Color</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Electric</td>
</tr>
<tr>
<td>Yellow</td>
<td>Gas/Oil</td>
</tr>
<tr>
<td>Orange</td>
<td>Telephone/Cable TV</td>
</tr>
<tr>
<td>Blue</td>
<td>Water</td>
</tr>
<tr>
<td>Green</td>
<td>Sewer</td>
</tr>
<tr>
<td>White</td>
<td>Area to be located</td>
</tr>
</tbody>
</table>

Any digging within 24 inches of either side of the location markings must be done by hand.

Cost for service
Contact the Cooperative to arrange for a field meeting to determine the cost and conditions for service.

Overhead Service

Member responsibilities
This section provides information on installing an overhead service.

The following checklist identifies tasks the member is responsible for. After these items are completed, the Cooperative will install the service equipment and meter.

- Check for local ordinances or covenants that prevent obtaining overhead service. Also, the local governing agency may not allow overhead service.
- Provide the Cooperative with load information.
- Call the Cooperative at 1-800-698-2007 to apply for a service connection and arrange a field meeting to determine where the service line will originate.
- Install the required service equipment.
- Install the service entrance conductors, leaving a minimum of 36 inches exposed at the weatherhead.
- Verify that the service mast height requirements have been met.
- Obtain an electrical inspection from governmental agency if required.

Getting started
Before requesting overhead service to a Large Basic service, the member should complete an “Application for Service.”

The next step when installing a new overhead service is to contact the Cooperative’s Engineering Department to arrange a meeting to determine which pole the service line will come from.

Next, determine the location of the meter socket. When choosing the meter location, consider carefully the terrain the line will cross. Make sure your entrance will be high enough to provide proper above ground clearance for service lines.

If the service line will pass through any trees, the Cooperative line crew will prune those trees to provide a clear path for the service line. The point of delivery for overhead service is the connector at the weatherhead.

Service mast requirements
The requirements for the installation of the service mast are described in the National Electrical Code (NEC). Some of the more common methods are included in this section.

Height requirements
The proper height for the service mast varies with each site. Call the Cooperative’s Engineering Department for assistance.

Clearances from gas meters
A minimum horizontal clearance of 3 feet is required between electric service equipment and natural gas metering equipment. An approved barrier is required if clearance is less than 3 feet. See Figure 12 on page 18.
Additional mast supports
Additional mast supports, typically a guy or a brace, are required for any service line over 50 feet in length.

Service Equipment Installation Requirements
The member is responsible for supplying and installing:
- Meter socket and current transformer enclosure.
- Service mast.
- Service entrance conductor.
- Ground rods.

The Cooperative will install the service line and meter for overhead services. The underground service installation is the responsibility of the member.

Manufactured buildings
If an overhead service is being installed to a manufactured building, the Cooperative’s service equipment can be installed one of two ways:

1. On a Cooperative-owned meter pole, or
2. On the manufactured building, if both of these conditions are met:
   a. The manufacturer installed the service equipment at the time the structure was built.
   b. The service requirement meets the meter socket requirements listed below.

Meter sockets installed on manufactured buildings must:
- Be located on an outside wall of the building and accessible for reading and testing.
- Be between 5 and 5 1/2 feet above finished grade.
- Be outside of a breezeway.
- Be outside of an area subject to being fenced.
- Assure that the top of the service mast meets NEC requirements.

Underground Service

Member responsibilities
For Large Basic underground services, the member supplies the secondary connectors and service conductors to the Cooperative’s transformer.

The following checklist identifies tasks the member is responsible for when installing underground service. After these items are completed, the Cooperative will install the meter and connect the service.

- Check any local ordinances or covenants that will prevent obtaining underground service.
- Supply site drawings to the Cooperative.
- Supply load information to the Cooperative.
- Provide an easement for any permanent equipment installed on the property and owned by the Cooperative.
- Call the Cooperative to determine where the underground service will originate.
- Select an approved meter location with Cooperative representative.
- Install required service equipment.
- Connect and label conductors at the meter location.
- Provide trench, conduit, riser, CT enclosures, vaults and service conductors per NHEC or NESC specifications, whichever is more stringent.
- Provide any additional excavation on private property.
- Obtain an electrical inspection from a governmental agency, if required.
- Call the Cooperative’s Member Call Center to order the service connection.

Getting started
Before installing an underground service to a commercial structure, you should complete an “Application for Service” and provide load information. This form allows the Cooperative Engineer to begin determining the required engineering specifications and the costs to the member, if any.
The point of delivery for underground service at secondary voltage is at the service lugs of the transformer or pedestal.

The Cooperative determines the point of delivery based, in part, on convenient access to existing power service.

All secondary facilities beyond the point of delivery are installed, owned, and maintained by the member.

**Service equipment**

The member is responsible for furnishing, installing, and maintaining all required service entrance equipment, including the service conductors from the meter socket or current transformer enclosure to the point of delivery designated by the Cooperative. For services where current transformers (CTs) are required, the member must also run conduit from the CT enclosure to the meter base. The Cooperative supplies the CTs, meter wiring, and meter socket.

### Services Greater Than 400 Amps

120/240 volt services over 400 amps require CT metering. Contact the Cooperative for more information.

Conduit requirements

The member is responsible for:

- Contacting the Cooperative’s Engineering Department for entry location and procedure when entering existing vaults with conduit.
- Grouting around member-owned conduits which enter the Cooperative’s vaults.
- Sealing service entry conduit to prevent water or other items from entering into the member’s service panel. Severe sealing problems may require a positive mechanical seal at the building wall and at the Cooperative’s vault.
Transformer locations
The Cooperative will install padmount transformers and oil-filled switches using the clearances shown in Figure 14 on page 19.

Clearances between padmount transformers and structures must be measured from the metal portion of the transformer closest to the building or structure. This includes any overhangs within the following clearances:

- 3 ft. - from non-combustible walls (including brick, concrete, steel, and stone), provided the side of the transformer facing the wall does not have doors.
- 6 ft. - from fire sprinkler valves, standpipes, and fire hydrants.
- 10 ft. - from combustible walls (including stucco), doors, windows, vents, fire escapes, and other building openings.
- 15 ft. - from the water’s edge of a swimming pool or any body of water.
- 20 ft. - from facilities used to dispense or store hazardous liquids or gases (for example, service station gas pumps and tanks, propane bulk dispensing tanks, and emergency generator fueling points).

Working space
A clear, unobstructed working area of 8 feet minimum shall be maintained around all sides of padmount equipment.

Protection for padmounted equipment
Guard posts are required around padmounted equipment that is in close proximity to vehicular traffic. Guard posts locations will be determined by the NHEC Representative.

It is the member’s responsibility to install and maintain guard posts, where required.

Landscaping and other obstacles
Landscaping and other obstructions must not encroach on the clearances specified in Figure 15, page 21.

Trenching
The service trench dug by the member must meet state and local regulatory requirements. Trenches supplied for primary systems owned and installed and inspected by the Cooperative must have a minimum of 36 inches cover from the top of the conduit to the point of final grade.

Meter Requirements
This Section gives information on metering requirements. The meter socket must:
- Be NHEC approved for application.
- Be UL (Underwriters’ Laboratory) approved for application.
- Be rated for exterior use, and be raintight according to NEMA-3R.
- Have all unused openings tightly sealed from the inside of the socket.
- Be plumb and securely fastened to the supporting structure.
- Be approved by New Hampshire Electric Cooperative (see approved listing at www.nhec.coop).

Removing and installing meters
Only qualified personnel, authorized by the Cooperative, are permitted to cut seals, and remove or install meters. Under emergency conditions, exceptions may be granted to qualified electricians by contacting the Cooperative’s Meter Department. When this occurs the party accepts all liability for damage or alteration to equipment, injury to persons or property, and loss of revenue to the Cooperative from the time the seal is removed until 72 hours after the Cooperative has been notified that the equipment is ready to be resealed. The member or electrical contractor must promptly notify the Cooperative when repairs or modifications have been completed. Extreme caution must be used when meters are removed or installed. Depending upon the type of service or meter base, removal of the meter might not de-energize service.

Equipment
Current transformer (CT) enclosures, switch gear, gutters that contain unmetered conductors, and metering equipment must have provisions for sealing. Contact the Cooperative meter department to obtain access for inspection.
The Cooperative will furnish, install, and maintain the following equipment:
- Revenue meters.
- Current transformers.
- CT meter wiring.

The member is responsible for furnishing, installing, and maintaining the following equipment beyond the point of delivery:
- Approved meter sockets.
- All necessary wiring, connectors, and lugs (except CT meter wiring).
- Switches.
- Current transformer cabinet upon Cooperative approval.
- Conduit.
- Protection equipment, including single phase conditions on a three phase service.

**Meter location**
The member must provide a location to install metering equipment. The meter location must be free from obstruction, corrosive atmosphere, abnormal temperature, vibration, and be convenient to the Cooperative’s distribution system. All meters, meter equipment, and enclosures must be readily accessible by Cooperative personnel during normal business hours for meter reading, maintenance, testing, installation, or removal. All meter locations are subject to approval by the Cooperative.

Meters must not be installed at any of the following locations:
- Above the first story level or below the first basement level of a building. Any exceptions to this rule must have the approval of the Cooperative’s Meter Department before electrical installation begins.
- On poles not owned by the Cooperative.
- On any line pole occupied solely by the telephone company, except to serve telephone company equipment.
- In commercial occupancies they do not serve.
- Any place where safety may be compromised.

**Figure 15 Meter socket minimum clearance**

**Electrical rooms**
Meter sockets may be located inside an electrical equipment room. The electrical room must be used solely for power and communication equipment. The electrical room must be well lit, accessible during normal business hours, and not used for storage. The member is responsible for providing a location near the door for installation of a key box, a key for the box, and for installing a sign on the exterior door saying “Electrical Room.”

**General meter socket requirements**
Meter socket requirements include the following:
- Meter sockets may be ring or ringless type. The meter ring must have a screw-type locking ring. Snap rings are not acceptable.
- Meter sockets must not be jumpered to provide power.
- Meter sockets and enclosures must be UL (Underwriters Laboratory) and NHEC approved (see approved listing at www.nhec.coop).
- Any meter socket containing energized equipment must be covered and sealed with a transparent cover plate when a meter is not installed.
• All unused openings of the meter socket enclosure must be closed with plugs (raintight, if outside) that are locked tightly in place from inside the enclosures, before a meter is installed.
• Meters must be installed only in sockets which are level, plumb, and securely fastened to the structure.
• Terminals must be marked with a conductor range for aluminum or copper conductors. When aluminum conductors are used, the socket must be approved and clearly marked by the manufacturer for that use.
• All meter equipment exposed to weather must be raintight according to the National Electrical Manufacturer’s Association (NEMA) 3R minimum.

**Meter clearances**
The center of the meter socket is always the point of reference. Meter socket height is a maximum of 5 1/2 feet and a minimum of 5 feet, above finished grade or floor.

When a meter socket enclosure is recessed in the building wall, a flush-type socket is required. Building siding must not cover or overlap the meter base.

Working space in front of metering equipment (including current transformer enclosures) must be at least 36 inches wide and 36 inches deep, measured from the front of the enclosure and meters. Plants, shrubs, and trees must not be planted in this space. Gas meters and related piping must be at least 36 inches away from metering equipment, see Figure 12, page 18.

The center of all meter socket enclosures must be a minimum of 10 inches from adjacent walls, ceilings, or other similar obstructions.

**Meter socket labeling**
Meter sockets must be permanently labeled to indicate the section or unit they serve, for example, the unit number. The member’s name is not acceptable. The labels must be engraved phenolic identifying plates, fade-resistant and at least one inch high. Felt-tip pens and label maker tape are not considered permanent markings. Service will not be established until marking is complete and verified for accuracy.

**Factory-built multiple meter panel**
Prior to shipment from the factory, the manufacturer must submit commercial multiple meter panel drawings to the Cooperative’s Meter Department for approval.

Meters must be adequately protected from mechanical damage, and the installation approved by the Cooperative’s Meter Department.

**Service conductors**
Metered circuits must not enter raceways or enclosures containing unmetered circuits, except for meter loops on poles, or in specific situations approved by the Cooperative’s Meter Department.

**Member load monitoring**
The member’s load monitoring equipment must be installed only on the load side of the meter. No member equipment is allowed inside a meter or current transformer enclosure.

**Grounding**
All meter sockets, enclosures, and conduit must be bonded and grounded in accordance with Articles 230 and 250 of the latest edition of the NEC. When self-contained meter sockets are used, the neutral conductor must be connected to the neutral terminal in the socket.

**Current limiting fuses**
Current limiting fuses to protect the member’s electrical system from high-fault current must not be installed in meter sockets, instrument transformer enclosures, or the Cooperative’s distribution transformers. They may be installed in the member’s service panel, or in a separate enclosure between the meter socket and the panel.

**Single-Phase 120/208 Volt Services**
A five-terminal meter socket is required on all single-phase networked 120/208 volt service. The fifth terminal must be in the nine o’clock position, connected to the socket neutral bus conductor.
Three-Phase Self-Contained Metering

Three-phase service requires a seven-terminal socket with a lever bypass. The neutral (grounded) conductor must be connected or tapped to the third terminal from the left on the lower terminals.

Meter socket/main disconnect combinations
Meter socket and circuit breaker combinations are required for 0-400 amps provided the meter socket is approved by the Cooperative.

Sequence of equipment
All self-contained service equipment must be metered ahead of the disconnect switch. Under special conditions, permission may be granted to modify this sequence in group installations of less than six individual occupancies, provided all equipment ahead of the meter is sealed by the Cooperative.

Load balancing
When 120/208 three-phase transformers provide single-phase service, it is the member’s responsibility to identify the conductors and balance the load on the transformer.

Service conductors for self-contained metering
Line-side conductors must always be connected to the top terminals of the meter socket.

The member is responsible for ensuring that the connection of service entrance conductors in the meter socket are inspected and tightened before the service is energized. If safety sockets are used, circuit-connecting nuts will also be properly torqued. Meters will not be installed unless these connections are tight, and are wired correctly for the class of service involved. Meters will not be installed if conductors place undue strain on the terminal facilities. Terminals must be rated for the size of conductor to be used. Strands must not be removed to make conductors fit under-sized terminals.

Current Transformer Metering

Single-phase over 400 amp and Three-phase over 400 amp

Member’s responsibility
Provisions for current transformers must be made when the current-carrying capacity of the service entrance conductors exceeds 400 amps single-phase or 400 amps three-phase, as determined by NEC.

The member is responsible to do the following:

1. Provide and install a current transformer (CT) enclosure where designated by the Cooperative. The member must install the CT enclosure on the supply side of the main disconnect, unless otherwise approved by the Cooperative’s meter department.

   All CT enclosures require a minimum front clearance of 36 inches. Hinged CT enclosure doors must not block a safe exit while open.

   The top of the CT enclosure is a maximum of 8 feet above the floor or finished grade; the bottom is a minimum of 6 inches above the floor/grade. Enclosures must not be mounted in crawl spaces, attics, any confined areas, or mounted on ceilings.

   All member-supplied CT mounting equipment shall be listed and labeled, and shall be installed and used in accordance with any instructions included in that listing or labeling.

2. Install the metering circuit conduit.

   The Cooperative-required conduit between the meter socket and CT enclosure shall be provided and installed by the member. Conduit must be as short as possible and cannot exceed 50 feet in length, and shall be installed according to Cooperative requirements. A pull-string of 1/4 inch polypropylene rope is required in any meter conduit over 10 feet.

   - Single-phase: 1 inch minimum.
   - Three-phase: 1 1/4 inch minimum.
The Cooperative’s responsibility
The Cooperative is responsible for providing and installing the following:
• Current transformers.
• Metering circuits (wiring).

Service Upgrade and Relocation

Introduction
An upgrade or relocation of service requires changing the existing metering equipment. This section provides information for upgrading and relocating an existing service. There are two types of upgrades: same location and relocation. Same location upgrades involve using the same location to install new metering equipment. Relocation upgrades involve moving the point of attachment to a new location, which may incur new costs.

Before Connection
Before calling the Co-op for service connection, please review this important information to avoid unnecessary delays and/or billing:
• Have you provided the Cooperative with all necessary documentation such as an easement and application?
• If you signed an easement, did you use black ink and have it notarized?
• Have you made all necessary up-front payments?
• Have you (or your electrician) set the service up as the applicable NHEC specification in this handbook shows?
• Is the service located as you and our Field Representative discussed?

If you have any questions concerning any of these items, please call the Cooperative at 1-800-698-2007 or the Field Representative for your area.

Getting started
The Cooperative should be made aware of any planned changes to an existing service as soon as possible.
• Review your plans with your electrician to determine what your needs are.
• Consult the Overhead and Underground sections of this handbook to determine the necessary requirements for your service.
• Make sure you have obtained all necessary permits for your project.
• Call the Cooperative at 1-800-698-2007 to arrange a field visit to determine the service requirements and what costs are involved.
• Provide the Cooperative with increased load information. You may be required to fill out a Load Data Sheet.
• Install the new service equipment to Cooperative specifications.
• Obtain an electrical inspection and approval of the service equipment and structure. The call for this inspection is made by the member (or the electrical contractor) to the electrical inspector for your area.
• Call the Cooperative at 1-800-698-2007, after the electrical inspection is complete, and request that the old service equipment be de-energized and that the new service equipment be energized. A service order will then be generated to the District for this work and they will insert it into their construction schedule.
clearance. A set 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 electrical conductors. A conduit may be metallic or nonmetallic, depending on its usage, in accordance with codes and standards.

corrosion inhibitor. Electrical joint compound used to retard oxidation of electrical connections.

direct burial. The installation of electrical conductors in a trench, without the use of conduit.

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.

ground. Connected to or in contact with earth or connected to some extended conductive body that serves instead of the earth.

guy. A cable or brace used to relieve the strain of overhead conductors on masts and poles.

keybox. A permanently installed, locked box with keys enclosed, mounted on the outside of a building, for accessing the customer’s premises to read, install, service, or remove the utility’s meters and/or electrical equipment during reasonable working hours.

listed. Equipment or material accepted by a nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation.

manual circuit-closing block. A provision for paralleling the meter circuit, allowing the meter to be removed without interrupting service to the customer.

meter equipment. Any equipment associated with measuring electric energy.

meter jaw. A spring-loaded receptacle inside a meter socket which connects the terminals of a meter to the source or load conductors of the service.

meter socket. The mounting device for socket type meters, consisting of meter jaws, connectors, an enclosure and, in permanent installations, an integrated main circuit breaker is required.

mobile home. A house trailer serving as a permanent home.

modular home. Also referred to as a manufactured home. A home designed with standardized units or dimensions and manufactured in a factory type facility.

municipal, state inspector. The qualified representative of a city or the state, authorized to inspect electrical service installations on their behalf.


NEMA. National Electrical Manufacturers Association. A trade association which publishes standards for manufacturers of electrical equipment, including enclosures and racks.

NESC. National Electrical Safety Code. Safety provisions for the installation, operation, and maintenance of electric supply and communication lines, published by Institute of Electrical and Electronics Engineers.

neutral. The grounded conductor in a single-phase, three-wire or three-phase, four-wire system. The service conductor at zero potential to ground.
**point of attachment.** On overhead services, the point at which the utility’s service line is attached to the customer’s structure.

**point of delivery.** The point where the utility’s service line and the customer’s system are interconnected.

**seal.** A locking device to secure a meter or service entrance equipment to assure safety and security.

**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 sockets, a device designed and rated to continuously carry the entire capacity of the service. The maximum self-contained meter socket current rating typically used is 400 amperes (also called a single-phase Class 320 A meter).

**service line.** Conductors from the utility’s system to the customer’s point of delivery. A service line can be overhead or underground.

**service entrance conductors.** On overhead services, conductors which extend between the customer’s meter socket and the point of delivery.

**service entrance equipment.** Service conduit, conductors, weatherhead, meter base, enclosures, service disconnect, and service panel.

**service mast.** The conduit above the meter used to provide mechanical protection for the service conductors and to support the service drop from the utility.

**temporary service.** An electrical service installed by the utility to provide power to a customer on a temporary basis (less than one year).

**UL.** Underwriters’ Laboratories. A recognized test laboratory which lists materials it has tested and accepted.

**weatherhead.** A simple underground-overhead fitting which provides a cap or a roof for the vertical conduit to prevent rain from entering it. Its use is restricted to connecting underground secondary cables to overhead secondary lines or service wires.
APPLICATION FOR MEMBERSHIP & SERVICE  
NEW HAMPSHIRE ELECTRIC COOPERATIVE, INC  
579 TENNEY MOUNTAIN HIGHWAY – PLYMOUTH, NEW HAMPSHIRE  03264  
(800) 698-2007  

Revised 2/04  

Service Order Number:  Pole Number:  Meter Number:  

Name: (Print): ____________________________________________________________________________________________________________________________  
First Name  Middle Name  Last Name  

Other Applicants: _____________________________________________________________________________________________________________________  
(Use back if necessary)  First Name  Middle Name  Last Name  

Permanent Mailing Address: __________________________________________________________________________________________________________  

Phone Number:  Home _________________________________  Business _________________________  

Address of Service: ___________________________________________________________________________________________________________________  

Where service is to be rendered:  
Residence _________________________________  Business _____________________________  Other _____________________________  
Property Owned ________________________  Rented ________________________________  
Owner’s Name & Phone Number _____________________________________________________________________________________________  
Anticipated period of occupancy _____________________________________________________________________________________________  

Date electric service became your responsibility _____________________________________________________________________________________________  

Have you previously been served by the Cooperative?  _________________________________________________________________________________  
If so, in what town? _____________________________________________  When terminated? ___________________________________________  

KIND OF SERVICE DESIRED: (Check applicable service)  
Will service be underground?  Circle one:  Yes  No  
SINGLE-PHASE SERVICE:  MAIN PANEL SIZE =  ________________________________  AMPs  
THREE-PHASE SERVICE:  MAIN PANEL SIZE =  ________________________________  AMPs  
THREE-PHASE SERVICE:  (Commercial)  REQUIRED VOLTAGE (Check one)  120/208  277/480  
OUTDOOR  LIGHTING:  

Is there an electric water heater in use here? _____________________________________________________________________________________________  
Is there permanently installed electric space heating in use here? ____________________________________________________________________________  

I/We hereby apply for membership in the New Hampshire Electric Cooperative, Inc., and for electric service to be supplied at the address herein described. I/We agree to pay for the service therefore subject to Rates, Terms, and Conditions of the New Hampshire Electric Cooperative, Inc., as filed with the Public Utilities Commission and in effect at the time of delivery or as subsequently revised. I/We have noted the minimum term of service specified in the applicable rate and understand that should service be requested to be terminated within such minimum term of service that I/We shall pay such amounts required to fulfill the minimum term of service requirements. I/We further understand that should the service herein requested involve a so-called line extension as defined within the terms and conditions of the tariff of the New Hampshire Electric Cooperative, Inc., that I/We shall enter into a contract for the required minimums for the required period with the New Hampshire Electric Cooperative, Inc., such contract to be of such a form as normally used by the Cooperative. I/We shall reimburse the Cooperative for all fees associated with the recording of necessary easements. In signing this application, I/We hereby agree to the extending and maintenance of utilities within the boundaries of my/our property. I/We recognize that the Cooperative has a right to construct, repair, operate, maintain, patrol, replace and remove overhead and underground lines consisting of wires, ducts, cables, poles, and other apparatus necessary for the transmission and distribution of electricity over and under my/our land in New Hampshire. This includes any necessary cutting and trimming of vegetation 15 feet on either side of the electric lines. Planting of trees, building of structures or storage of lumber and/or other materials within this right-of-way shall not be undertaken without the knowledge and consent of the Cooperative. I/We will not hinder or obstruct the installation or reliability of services to other members of the Cooperative. As a member of the Cooperative I/We agree to be bound by its Charter and Bylaws.  

Social Security No. __________________________________________  Signed ________________________________________________________________________________  
(Required)  
Social Security No. __________________________________________  Signed ________________________________________________________________________________  
(Required)  
Deposit Required $ ________________________________  Date ________________________________________________________________________________
New Hampshire Electric Cooperative Inc.
Load Data Survey Sheet

SERVICE LOCATION:

CUSTOMER / CO. NAME:_____________________________________________________________________________________

SERVICE LOCATION: Street:________________________________  Town:____________________________________________

CONTACT PERSON: __________________________________________ Telephone:_______________________________________

CONTACT PERSON: __________________________________________ Telephone:_______________________________________

CONTRACTOR NAME: _______________________________________________________________________________________

CONTACT PERSON: __________________________________________ Telephone:_______________________________________

ELECTRICIAN: _______________________________________________________________________________________________

CONTACT PERSON: __________________________________________ Telephone:_______________________________________

SERVICES DATA:

MAIN PANEL SIZE:_____________________________  MAIN BREAKER SIZE: _________________________________________

VOLTAGE: ______________________  Single-Phase: 120/240 ______  3 PH 4 WIRE: 120/208______277/480____

ELECTRICAL CONNECTED LOADS IN KW OR KVA:

LIGHTING: ___________________________________  SPACE HEATING:________________________________________

AIR CONDITIONING: ___________________________  WATER HEATING:________________________________________

ELEVATOR: _____________________________________  RECEPTACLES:________________________________________

WASHER: ________________________________________  MISCELLANEOUS:____________________________________

DRYER: _________________________________________  OTHER “DESCRIBE”:______________________________

MOTORs: ______________________________________  EMERGENCY GENERATION? _____ KW:____________

TOTAL CONNECTED LOAD:______________________ (KW OR KVA)

LARGE ELECTRICAL EQUIPMENT:

List any single item larger than 5 KW or 5 HP below:

<table>
<thead>
<tr>
<th>Item</th>
<th>1PH or 3PH</th>
<th>Volts</th>
<th>Startings Current (Motors)</th>
<th>Running Current</th>
<th>Operating Time</th>
</tr>
</thead>
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</tbody>
</table>

ESTIMATED DATE WHEN SERVICE WILL BE NEEDED:______________________________________________________________

FORM FILLED OUT BY: __________________________________________ DATE:____________________________

SIGNATURE:______________________________________________________________________________________

REPLY TO: NEW HAMPSHIRE ELECTRIC COOPERATIVE, INC., PLANT SERVICES DEPT.
579 TENNEY MTN. HIGHWAY  •  PLYMOUTH, NH  03264
Tel : 1-800-698-2007  •  Fax : (603) 536-8818

Office Use Only | Field Planner | District | Substation | Pole #
Back-up Generator Registration Form

If you own an emergency / stand-by electric generator to supply power during outages, it is critical for your safety and the safety of New Hampshire Electric Co-op line crews that your equipment be properly installed and that the Co-op is aware that you have a generator. Please fill out the following form so that we can update our records to reflect your installation.

NHEC Account Information

Today’s Date _________________________ Phone Number__________________________________________
Name _______________________________________________________________________________________
Address _______________________________________________________________________________________
__________________________________________________________________________________________
Account Number ______________________________________________________________________________

Generator Information

Generator Size (In Watts) ___________________________ Brand Name ______________________________
Installation Date (Month & Year) ______________________ Fuel Type _________________________________
Transfer Switch? Yes ___ No ___ (If Yes) Type: Automatic ___ Manual ___ Model ________________
Installation by Licensed Electrician? Yes ___ No ___ Inspection by Licensed Electrician? Yes ___ No ___

NHEC Use

Reviewed By _________________________
Record Updated________________________
Follow-up _________________________

Return To: Questions:
Generator Registration Telephone: 1-800-698-2007
New Hampshire Electric Cooperative Email: nhechq@nhec.com
579 Tenney Mountain Hwy.  
Plymouth, NH 03264
Cooperative Service Specifications
1. TYPICAL DOUBLE POLE-DOUBLE THROW SWITCH INSTALLATION FOR USE WITH A BACK-UP GENERATOR.

2. NHEC RECOMMENDS THAT ONLY THOSE CIRCUITS NEEDED IN AN EMERGENCY (i.e.: OIL BURNER, ONE LIGHTING CIRCUIT, etc) BE ISOLATED IN A SEPARATE FUSE BOX, AS MOST GENERATORS ARE NOT LARGE ENOUGH FOR THE LOAD DEMANDED BY ALL YOUR HOUSEHOLD APPLIANCES. AS ILLUSTRATED, THIS FUSE BOX CAN BE FED FROM EITHER YOUR MAIN SWITCH OR THE GENERATOR.

3. IF THE GENERATOR IS LARGE ENOUGH TO CARRY YOUR ENTIRE LOAD, THE MAIN SWITCH MAY BE CONNECTED TO THE LOAD SIDE OF THE DOUBLE POLE-DOUBLE THROW SWITCH. THE FEED TO THIS SWITCH WOULD THEN BE FROM YOUR GENERATOR OR DIRECTLY FROM OUR METER.

4. NHEC URGES YOU TO CONTACT A QUALIFIED ELECTRICIAN OR THE SUPPLIER OF THE GENERATOR TO DETERMINE THE OPERATING LIMITS OF THE UNIT YOU PURCHASE.

5. PLEASE NOTIFY THE NHEC AT 1-800-698-2007, (PRESS #4), IF AND WHEN YOU INSTALL A BACK-UP GENERATOR, TO SCHEDULE AN INSPECTION BY DISTRICT PERSONNEL.
### Single-Phase Service: (120/240v)

<table>
<thead>
<tr>
<th>Service Entrance (120/240v)</th>
<th>Standard Wire Size</th>
<th>Maximum Service Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERHEAD (Triplex Service Drop)</td>
<td></td>
</tr>
<tr>
<td>100 Amp</td>
<td>2 (Conch, 150 amps)</td>
<td>200’</td>
</tr>
<tr>
<td></td>
<td>1/0 (Neritina, 205 amps)</td>
<td>300’</td>
</tr>
<tr>
<td>200 Amp</td>
<td>2 (Conch, 150 amps)</td>
<td>90’</td>
</tr>
<tr>
<td></td>
<td>1/0 (Neritina, 205 amps)</td>
<td>150’</td>
</tr>
<tr>
<td></td>
<td>4/0 (Zuzara, 315 amps)</td>
<td>300’</td>
</tr>
<tr>
<td>400 Amp</td>
<td>4/0 (Zuzara, 315 amps)</td>
<td>150’</td>
</tr>
<tr>
<td></td>
<td>UNDERGROUND (Triplex 600V Secondary UD)</td>
<td></td>
</tr>
<tr>
<td>100 Amp</td>
<td>1/0-2 (Brenau, 160 amps, 3&quot;)</td>
<td>300’</td>
</tr>
<tr>
<td>200 Amp</td>
<td>1/0-2 (Brenau, 160 amps, 3&quot;)</td>
<td>150’</td>
</tr>
<tr>
<td></td>
<td>4/0-2/0 (Sweetbriar, 240 amps, 3&quot;)</td>
<td>300’</td>
</tr>
<tr>
<td>400 Amp</td>
<td>500-350 (Ryder, 395 amps, 4&quot;)</td>
<td>350’</td>
</tr>
</tbody>
</table>

### Three-Phase Service: (120/208v; 277/480v)

<table>
<thead>
<tr>
<th>Service Entrance (Voltage)</th>
<th>Standard Wire Size</th>
<th>Maximum Service Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERHEAD (Quadruplex Service Drop)</td>
<td></td>
</tr>
<tr>
<td>200 Amp (120/208v)</td>
<td>1/0 (Costena, 180 amps)</td>
<td>125’</td>
</tr>
<tr>
<td></td>
<td>4/0 (Appaloosa, 275 amps)</td>
<td>225’</td>
</tr>
<tr>
<td>200 Amp (277/480v)</td>
<td>1/0 (Costena, 180 amps)</td>
<td>250’</td>
</tr>
<tr>
<td></td>
<td>4/0 (Appaloosa, 275 amps)</td>
<td>500’</td>
</tr>
</tbody>
</table>

**Notes:**

1) The service lengths listed in the above tables are the maximum allowable distances calculated for a 3.0% volt drop on the respective length of wire when actual load data is not available. All analysis assumed these service lengths to be the distance between NHEC’s transformer and the member’s meter. NHEC recommends that actual service lengths be shorter whenever possible and that midspan poles may be required for overhead services.

2) Please contact Engineering for all service requirements/needs that fall outside of these guidelines.

3) All underground cable ampacities listed in the above tables are the manufacturer’s ratings for installation in conduit.
NOTE:
CHECK WITH NHEC AREA SUPERVISOR PRIOR TO CONSTRUCTION

NOTES:

1. PLEASE CALL THE DISTRICT OFFICE OF THE COOPERATIVE AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.

2. ALL SERVICE WIRING MUST BE COMPLETED BEFORE NHEC EXTENDS SERVICE DROP CONDUCTORS TO THE SUPPORTING STRUCTURE.

3. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES, WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.

4. MAXIMUM TIME LIMIT OF THIS SERVICE IS 12 MONTHS.

5. THE POINT OF ATTACHMENT SHALL BE DETERMINED BY THE REQUIRED MINIMUM GROUND CLEARANCE OF THE SERVICE DROP CONDUCTORS.

6. SERVICE STRUCTURE SHALL NOT BE FURTHER THAN 50 FEET AWAY FROM LAST NHEC ATTACHMENT AS ARRANGED WITH FIELD REPRESENTATIVE.

7. ALTERNATIVE SUPPORTING ARRANGEMENTS MAY BE USED IF ALL CLEARANCE AND GROUNDING REQUIREMENTS OF THE NEC ARE SATISFIED AND THE AUTHORITY HAVING JURISDICTION IS IN AGREEMENT.
MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. WEATHER HEAD
2. SERVICE ENTRANCE CABLE TO BE INSTALLED WITH ENDS EXTENDING 1-1/2" OUTSIDE OF WEATHER HEAD FOR Drip LOOP.
3. CABLE CLIPS INSTALLED EVERY 36".
4. WATERTIGHT CONNECTOR
5. GROUND WIRE NO. 6 COPPER (MINIMUM SIZE)
6. GROUND ROD CONNECTORS
7. GROUND RODS (2) MIN. 6-3/8" x 5/8" DIAMETER COPPER CLAD.
8. METER SOCKET WITH HUB

SOCKET MUST HAVE INTEGRATED MAIN CIRCUIT BREAKER(S), TO BE SECURELY ATTACHED TO BUILDING BY CONSUMER.

MATERIALS FURNISHED AND INSTALLED BY NHEC

METER
SERVICE DROP CONDUCTORS, WIRE HOLDER & CONNECTORS
*NOTE: CONNECTORS FOR SERVICES OVER 500 MCM, WILL BE FURNISHED BY CONSUMER.

NOTES:
1.) PLEASE CALL THE DISTRICT OFFICE OF THE COOPERATIVE AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.
2.) ALL ENTRANCE WIRING MUST BE COMPLETED BEFORE NHEC EXTENDS SERVICE DROP CONDUCTORS TO THE BUILDING. ATTACHMENT HEIGHTS IN EXCESS OF 18 FEET ARE SUBJECT TO NHEC APPROVAL.
3.) THE POINT OF ATTACHMENT ON THE BUILDING TO BE DETERMINED BY THE REQUIRED MINIMUM GROUND CLEARANCES OF SERVICE DROP CONDUCTORS.
4.) ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES.
5.) FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.
MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. 2" WEATHER HEAD
2. SERVICE ENTRANCE CONDUCTORS
   TO BE INSTALLED IN CONDUIT WITH ENDS EXTENDING 3'-0" OUTSIDE OF WEATHER HEAD FOR Drip LOOP.
3. 2" CONDUIT
   CONDUIT MAY BE EITHER SCHEDULE 80 PVC OR GALVANIZED STEEL.
4. PIPE STRAPS
5. MOUNTING BOARD
   MINIMUM 1" PRESSURE TREATED MATERIAL OR METAL BRACKETS FOR MOUNTING METER SOCKET DIRECTLY TO THE POLE.
6. METER SOCKET WITH HUB
   SOCKET MUST HAVE INTEGRATED MAIN CIRCUIT BREAKER(S), TO BE SECURELY ATTACHED TO MOUNTING BOARD BY CONSUMER.
7. GROUND WIRE
   NO. 6 COPPER (MIN. SIZE) BONDED TO GALVANIZED STEEL CONDUIT BY CONSUMER AS REQD.
8. GROUND ROD CONNECTORS
9. GROUND RODS
   (2) MIN. 8-1/2" X 5/8" DIAMETER COPPER CLAD.

MATERIALS FURNISHED AND INSTALLED BY NHEC

POLE, METER
SERVICE DROP CONDUCTORS, WIRE HOLDER & CONNECTORS

NOTES:
1) PLEASE CALL THE DISTRICT OFFICE OF NHEC AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.
2) ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
3) ALL SERVICE ENTRANCE WIRING MUST BE COMPLETE.
4) ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES. WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.
5) MOBILE HOME METER LOCATION SHALL BE READILY ACCESSIBLE, IN SIGHT, AND NOT MORE THAN 30 FEET FROM EXTERIOR WALL OF MOBILE HOME IT SERVES. IF DISTANCE EXCEEDS 30 FEET, A SECOND DISCONNECT SWITCH IS REQUIRED.
6) CONDUIT AND WEATHER HEAD MUST EXTEND TO THE TOP OF THE POLE AS SHOWN TO PROVIDE CLEARANCE FOR TEL & CATV ATTACHMENTS.
   RISER MATERIAL ABOVE METER TO BE FURNISHED BY MEMBER AND INSTALLED BY NHEC
7) FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.

CONSTRUCTION STANDARDS
OVERHEAD SERVICE INSTALLATION
REMOTE METER ON POLE
SINGLE RESIDENCE

ISSUE DATE: 06/05
MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. WEATHER HEAD
2. SERVICE ENTRANCE CONDUCTORS
   - To be installed in conduit with ends extending 2'-0" outside of weather head for drip loop.
3. 2" CONDUIT
   - Conduit may be either Schedule 80 PVC or Galvanized Steel.
4. MOUNTING BOARD
   - Minimum 5/4" pressure treated material or metal brackets for mounting meter socket directly to pole.
5. PIPE STRAPS
6. GROUND WIRE
   - No. 6 copper (min. 2x) bonded to galvanized steel conduit by consumer as reqd.
7. GROUND ROD CONNECTORS
8. GROUND RODS
   (2) Min. 8'-0" x 1/8" diameter copper clad.
9. METER SOCKET WITH HUB
   - Socket must have integrated main circuit breaker(s), to be securely attached to mounting board by consumer.

NOTES:
1) Please call the district office of NH Electric and make arrangements to have the meter location approved before making any changes in your present entrance or installing a new entrance.
2) All conduit and accessories must meet electrical grade specifications.
3) All wiring and materials must conform to the requirements of the National Electrical Code and to applicable local codes. Where conflict exists, the more stringent code will apply.
4) Some cost will be incurred by consumer.
5) Extension of weather head must extend to the top of the pole as shown to provide clearance for tel & catv attachments. Riser material above meter to be furnished by member and installed by NH Electric.
6) Four wire cable must be installed from meter socket to distribution panel.
INSTALLATION REQUIREMENTS FOR OVERHEAD SERVICE

MATERIALS FURNISHED AND INSTALLED BY CONSUMER

SERVICE MAST KIT
TYPICAL COMPONENTS INCLUDE:

1. WEATHER HEAD
2. INSULATED CONDUIT CLEVIS
3. CONDUIT HANGERS
4. 2" CONDUIT
   GALVANIZED STEEL
   (NOT APPLICABLE FOR 400 AMP SERVICES)
5. SERVICE ENTRANCE CONDUCTORS
   TO BE INSTALLED WITH ENDS
   EXTENDING 3" OUTSIDE OF
   WEATHER HEAD FOR DRIP LOOP.
6. GROUND WIRE
   NO. 6 COPPER (MINIMUM SIZE)
7. GROUND ROD CONNECTORS
8. GROUND RODS
   (2) MIN. 8'-0" x 5/8" DIAMETER
   COPPER CLAD.
9. METER SOCKET WITH HUB
   SOCKET MUST HAVE INTEGRATED
   MAIN CIRCUIT BREAKER(S), TO BE
   SECURELY ATTACHED TO BUILDING
   BY CONSUMER.

MATERIALS FURNISHED AND INSTALLED BY NHEC

METER
SERVICE DROP CONDUCTORS

NOTES:
1. PLEASE CALL THE DISTRICT OFFICE OF NHEC AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.
2. ALL ENTRANCE WIRING MUST BE COMPLETED BEFORE NHEC EXTENDS SERVICE DROP CONDUCTORS TO THE BUILDING.
3. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES. WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.
4. THE POINT OF ATTACHMENT ON THE BUILDING TO BE DETERMINED BY THE REQUIRED MINIMUM GROUND CLEARANCES OF SERVICE DROP CONDUCTORS. ATTACHMENT HEIGHTS IN EXCESS OF 15 FEET ARE SUBJECT TO NHEC APPROVAL.
5. FOR THE 2" CONDUIT AS SHOWN, THE MAXIMUM DISTANCE FROM THE ROOF TO THE POINT OF ATTACHMENT IS 26 INCHES FOR NO. 2 TRIPLEX OR 22 INCHES FOR NO. 1/0 TRIPLEX.
6. THE CONSUMER ASSUMES THE RESPONSIBILITY THAT THE SERVICE MAST IS OF ADEQUATE STRENGTH (INCLUDING SUPPORT BY BRACES OR GUYS IF REQUIRED) TO WITHSTAND STRAIN IMPOSED BY THE SERVICE DROP CONDUCTORS.
7. FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.

CONSTRUCTION STANDARDS
OVERHEAD SERVICE INSTALLATION
SERVICE MAST
SINGLE RESIDENCE

ISSUE DATE: 06/05
## Installation Requirements for Underground Conduit Systems

1. Contractors shall call the district office of the Cooperative a minimum of 24 hours before trench is started to make arrangements for on-site inspection.

2. Underground (buried) conduit shall be Schedule 40 PVC or other corrosion resistant duct suitable for the intended environment as approved by the Cooperative. All 90 degree bends shall be electrical grade, schedule 40 PVC or Rigid galvanized steel sweeps with minimum bending radius of 36 inches.

3. Minimum size for buried conduit shall be 3 inches for all conductor smaller than 500 MCM, and 4 inches for primary or conductor 500 MCM or larger.

4. Conduit minimum depth 36 inches. Any conduit crossing under a road shall be Schedule 80. Conduits installed less than 36 inches in depth require Cooperative engineering approval and shall be encased in concrete to Cooperative specs. Depths specified are to finished grade.

5. Trenches to be in as straight and direct a line as possible. Routes through unstable soil such as mud, shifting soils, or other hazards should be avoided.

6. Longitudinal runs of conduit should not be located directly over or under other underground facilities such as gas, water sewer lines and septic systems. Whenever possible the horizontal distance between these facilities should be a minimum of 6 feet to permit access and maintenance of either facility without damage to the other. Under special circumstances, controlled horizontal separation of down to 12 inches will be allowed providing all parties are in agreement as to the method.

7. Underground conduit systems shall not be installed within 5 feet of any building foundation, swimming pool, etc., except for where service conduit merges to intercept the service equipment.

8. Caution Ribbon shall be installed above the conduit, a foot below finished grade. In trenches for primary cable, a continuous No. 6 AWG copper grounding conductor shall be directly buried in the bottom of the trench, prior to installation of any conduit, with adequate length at each end for connections by the Cooperative.

9. When electric facilities are installed in the same trench as communication facilities, a No. 6 AWG copper bonding conductor, readily accessible at both ends shall be installed at each vault, pad mounted equipment location between electric and communication facilities.

10. A pulling rope, 1/4 inch diameter polypropylene, shall be installed in each conduit.

11. The ends of the conduit shall be plugged during construction to prevent the entrance of foreign matter. The conduit shall be terminated as follows:
   a. Conduit shall terminate not more than 3 inches inside a vault. Whenever possible the conduit should run straight into the vault without sweeps or bends. Where the conduit enters the vault, it shall be grouted to prevent water, soil and rock intrusion.
   b. At meter locations, the conduit shall terminate as per appropriate meter installation specs. If the meter socket is at a lower grade than the pad mounted equipment location or part of the underground conduit system, provisions shall be made as necessary so that the conduit will not fill with water and run into the meter socket.

12. All ends, joints and internal finish of the conduit shall be free of sharp edges or burrs which could damage the cable.

13. All buried joints shall be glued with cement as recommended by the conduit manufacturer.

14. Any change in direction between lengths of straight rigid conduit greater than 5 degrees shall be made in electrical sweeps, or with a very gradual sweeping change of
Installation Requirements for Underground Conduit Systems

direction. Any single run of conduit will contain no more than two 90 degree sweeps. If the secondary runs of conduit are less than 150 feet in length then schedule 40, PVC sweeps are acceptable. For runs of conductor sized 500MCM and larger that exceed 150 feet in length, all sweeps shall be steel. For runs of conductor smaller than 500MCM size and that exceed 200 feet in length, all 90° sweeps shall be steel.

15 The consumer shall be responsible for having the conduit/vault system ready, prior to NHEC personnel installing the cable. Any changes, repairs or other work required to the underground conduit/vault system in order for NHEC personnel to pull the cable into the conduit shall be the responsibility of the consumer.

16 A drainage system must be installed in all vaults and structures. In areas of high water table, vaults and conduit may need to be elevated to promote effective drainage.

17 If a reduction in the service conduit is required, it will occur at the top of the slip joint/expansion fitting utilizing a reducing bushing. The slip joint/expansion fitting will remain the same size as the conduit installed in the trench with the transition occurring above ground. (Refer to IU Service Reduction drawing on page 53.)

18 Member shall be responsible to enclose and cover any open holes and secure any hazardous conditions until such time NHEC completes their work.
Conduit and Trench Inspection Notice

All contractors and developers requesting underground electrical service shall call the Member Solutions Department of New Hampshire Electric Cooperative a minimum of 24 hours before trench is started to make arrangements for on-site inspection by NHEC Construction personnel. NHEC will conduct an on-site inspection within 2 working days of the inspection request.

All trenches will be left open so that the conduit system can be certified as meeting the "Installation Requirements for Underground Conduit Systems" listed on page 38 of the "Handbook for Electric Service" provided by NHEC.

Once certification has been completed, an NHEC "approval" sticker will be placed at the appropriate location on the meter socket to notify all parties that the underground electrical system can be installed.

Failure to comply with this requirement will result in the system being re-exposed so that the proper installation can be performed. No electrical service will be installed until the inspection sticker is in place.

Please be prepared to give all information regarding your project to our Member Solutions representative, including your Service Order #_________________.

Contact number: 1-800-698-2007
INSTALLATION REQUIREMENTS FOR UNDERGROUND SERVICE

MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. SUPPORT POST
   4" x 8" MIN. SQUARE OR 8" DIA. MIN. ROUND.

2. METER SOCKET
   SECURELY ATTACHED TO POST

3. SERVICE ENTRANCE CABLE
   CONNECTION TO TRANSFORMER MADE BY COOPERATIVE.

4. PIPE STRAPS

5. 2" CONDUIT
   LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT;
   TYPE LFNC MAY BE USED FOR THIS INSTALLATION
   IN LIEU OF SCHEDULE 80 PVC OR GALVANIZED STEEL
   & INSULATED BUSHING.
   ATTACH TO TRANSFORMER VIA KNOCKOUT PANEL.

6. GROUND WIRE
   NO. 6 COPPER (MIN. SIZE) BONDED
   TO GALVANIZED STEEL CONDUIT BY
   CONSUMER AS REQUIRED.

7. GROUND ROD CONNECTORS

8. GROUND RODS
   (2) MIN. 8" x 8" DIAMETER COPPER CLAD.

NOTES:

1. PLEASE CALL THE DISTRICT OFFICE OF NHEC AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE
   MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.

2. THE CONSUMER IS RESPONSIBLE FOR ALL TRENCHING, REFER TO NHEC DISTRIBUTION STANDARDS FOR TRENCHING SPECIFICATIONS.

3. ALL SERVICE WIRING MUST BE COMPLETED BEFORE NHEC EXTENDS UNDERGROUND SERVICE LATERAL CONDUCTORS.

4. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES.
   WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.

5. MAXIMUM TIME LIMIT OF THIS SERVICE IS 12 MONTHS.

6. REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS".

MATERIALS FURNISHED AND INSTALLED BY NHEC

METER
MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. SUPPORT POST
   2" x 8" x 8' OR 10'
   OR SECTION OF WALL

2. METER SOCKET
   SOCKET MUST HAVE INTEGRATED
   MAIN CIRCUIT BREAKER(S), TO BE
   SECURELY ATTACHED TO BUILDING
   BY CONSUMER.

3. SERVICE ENTRANCE CABLE

4. PIPE STRAPS

5. 3" OR 4" CONDUIT
   CONDUIT MAY BE EITHER SCHEDULE 80 PVC
   OR GALVANIZED STEEL & INSULATED BUSHING.

6. GROUND WIRE
   NO. 6 COPPER (MIN. SIZE) BONDED
   TO GALVANIZED STEEL CONDUIT BY
   CONSUMER AS REQ'D.

7. GROUND ROD CONNECTORS

8. GROUND RODS
   (3) MIN. 8"-0" x 5/8" DIAMETER
   COPPER CLAD.

9. 3" OR 4" SLIP-JOINT
   PROTECT HEAD PROTECTION

10. 3" OR 4" CONDUIT (IF NEEDED)
    SCHEDULE 40 PVC.

11. 3" OR 4" ADAPTER (IF NEEDED)

12. 3" OR 4" 90°, 36° RADIUS SWEEP
    (SEE NOTE 6)

13. GROUND CLAMP
    A GROUND CONNECTION MUST BE VISIBLE IF THE
    GALVANIZED SWEET EXTENDS ABOVE GROUND

14. CABLE
    2' LENGTH OF #6 CU WIRE FOR NECB TO
    CONNECT TO THE GROUND ROD

15. CAUTION RIBBON
    RED 8" WIDE CAUTION RIBBON, MUST SAY
    "ELECTRICAL LINE BURIED BELOW".

16. 1/4" POLYPROPYLENE STRING
    INSTALLED IN ALL CONDUITS WITH STRING
    EXPOSED AND TIED OFF AT ENDS THRU
    CAPS AT END OF CONDUIT.

UNDERGROUND SERVICE LATERAL
CONDUCTORS
TO BE INSTALLED BY COOPERATIVE.

SCHEDULE 40 PVC CONDUIT,
(3") FOR 200 AMP SERVICE, &
(4") FOR 400 AMP SERVICE,
TO POLE LOCATION FURNISHED
AND INSTALLED BY CONSUMER.

MATERIALS FURNISHED AND
INSTALLED BY NECB

METER
UNDERGROUND SERVICE
LATERAL CONDUCTORS
FURNISHED AND INSTALLED BY COOPERATIVE
FOR BASIC SERVICE,
FURNISHED BY CONSUMER FOR LARGE
BASIC SERVICE.

LOCATE METER SOCKET
AT PERMANENT LOCATION
ADJACENT TO CONCRETE FOUNDATION,
SOCKET MUST BE USED
AS LISTED AND LABELED.

TYPICAL INSTALLATION,
CHECK LOCAL & NEC
CODES FOR NEED FOR FUSED
OUTDOOR DISCONNECT, GFI, AND
WATERPROOF RECEPTACLES.

NOTES:
1. PLEASE CALL THE DISTRICT OFFICE OF THE COOPERATIVE AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.
2. ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
3. ALL SERVICE ENTRANCE WIRING MUST BE COMPLETE AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO THE TIME OF INSTALLATION OF THE UNDERGROUND SERVICE LATERAL CONDUCTORS BY NECB.
4. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES. WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.
5. THE CONSUMER IS RESPONSIBLE FOR ALL TRENCHING, REFER TO COOPERATIVE DISTRIBUTION STANDARDS FOR TRENCHING SPECIFICATIONS.
6. AN ELECTRICAL GRADE SCHEDULE 40 PVC 90° SWEEP WITH A MINIMUM RADIUS OF 36 INCHES MAY BE SUBSTITUTED IN STRAIGHT RUNS BETWEEN RIBBER POLE AND METER FOR 500 U.S.E. LESS THAN 150 FEET, FOR 400 U.S.E. LESS THAN 200 FEET, AND FOR 100 U.S.E. LESS THAN 200 FEET IN LENGTH. IF RUNS EXCEED THESE LIMITS, THEN ALL 90° SWEEPS MUST BE GALVANIZED STEEL AND BONDED.
7. MAXIMUM TIME LIMIT OF THIS SERVICE IS 12 MONTHS.
8. GALVANIZED STEEL CONDUIT MUST BE BONDED TO GROUND WIRE, AS REQUIRED.
9. FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.
10. REFER TO INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS.
INSTALLATION REQUIREMENTS FOR UNDERGROUND SERVICE

MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. 3" OR 4" CONDUIT
   SCHEDULE 40 PVC
   *USE 3" CONDUIT FOR 200 AMP SERVICE AND 4" FOR SERVICES GREATER THAN 200 AMPS

2. 3" OR 4" 90°, 36" RADIUS SWEEP
   (SEE NOTE 5)

3. 3" OR 4" ADAPTER
   (IF NEEDED)

4. 3" OR 4" CONDUIT
   SCHEDULE 40 PVC

5. GROUND CLAMP
   A GROUND CONNECTION MUST BE VISIBLE IF THE
   GALVANIZED SWEEP EXTENDS ABOVE GROUND

6. CABLE
   2' LENGTH OF #6 CU WIRE FOR NHEC
   TO CONNECT TO THE GROUND ROD

7. CAUTION RIBBON
   RED, 6" WIDE CAUTION RIBBON, MUST SAY
   "ELECTRICAL LINE BURIED BELOW"

8. 1/4" POLYPROPYLENE STRING
   INSTALLED IN ALL CONDUITS WITH STRING
   EXPOSED AND TIED OFF AT ENDS THRU
   CAPS AT END OF CONDUIT.

MATERIALS FURNISHED AND INSTALLED BY NHEC

POLE
SERVICE DROP CONDUCTORS, WIRE HOLDER & CONNECTORS
*NOTE: CONNECTORS FOR SERVICES OVER 500 KW, WILL
BE FURNISHED BY CONSUMER.

GROUND WIRE
GROUND ROD AND CONNECTOR
2", 3" OR 4" WEATHER HEAD
2", 3" OR 4" CONDUIT
2", 3" OR 4" COUPLING
ALUMA-FORM STANDOFF BRACKETS
REDUCER TO 2" OR 3"

ALL CONDUIT ABOVE GRADE, UP TO
A HEIGHT OF 10', TO BE SCHEDULE
80 OR GALVANIZED STEEL PIPE.

ASSEMBLY FOR USING STANDOFF BRACKET

2" CONDUIT: USE 1 - 2
3" CONDUIT: USE 1 - 3
4" CONDUIT: USE 1 - 4

CONSTRUCTION STANDARDS
SINGLE RESIDENCE
400 AMP SERVICE OR LESS
PRIMARY POLE WITH OFFSET

NOTES:
1.) ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
2.) ALL CONSUMER FURNISHED MATERIAL TO BE ON HAND, AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO TIME OF
INSTALLATION OF EQUIPMENT ON POLE BY NHEC PERSONNEL.
3.) CONDUIT TO BE ON QUADRANT OF POLE OPPOSITE FLOW OF TRAFFIC.
4.) FOR FRENCH SPECIFICATIONS, REFER TO NHEC DISTRIBUTION STANDARDS.
5.) AN ELECTRICAL GRADE SCHEDULE 40 PVC 90° SWEEP WITH A MINIMUM RADIUS OF 36 INCHES MAY BE SUBSTITUTED IN STRAIGHT RUNS
BETWEEN RISER POLE AND METER FOR 500 U.S.G. LESS THAN 150 FEET, FOR 400 USE LESS THAN 200 FEET, AND FOR 100 USE LESS
THAN 200 FEET IN LENGTH. IF RUNS EXCEED THESE LIMITS, THEN ALL 90° SWEEPS MUST BE GALVANIZED STEEL AND BONDED.
6.) GALVANIZED STEEL CONDUIT MUST BE BONDED TO GROUND WIRE, AS REQUIRED.
7.) REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS".

ISSUE DATE: 06/05
**INSTALLATION REQUIREMENTS FOR UNDERGROUND SERVICE**

### MATERIALS FURNISHED AND INSTALLED BY CONSUMER

- **3" OR 4" CONDUIT**
  - SCHEDULE 80 PVC

- **3" OR 4" 90°, 36" RADIUS SWEEP**
  - (SEE NOTE 5)

- **3" OR 4" ADAPTER**
  - (IF NEEDED)

- **3" OR 4" CONDUIT**
  - SCHEDULE 40 PVC

- **GROUND CLAMP**
  - A GROUND CONNECTION MUST BE VISIBLE IF THE GALVANIZED SWEEP EXTENDS ABOVE GROUND

- **CABLE**
  - 2 LENGTH OF #8 CU WIRE FOR NHEC TO CONNECT TO THE GROUND ROD

- **CAUTION RIBBON**
  - RED, 8" WIDE CAUTION RIBBON MUST SAY "ELECTRICAL LINE BURIED BELOW".

- **3/16" POLYPROPYLENE STRING**
  - INSTALLED IN ALL CONDUITS WITH STRINGS EXPOSED AND TIED OFF AT ENDS THRU CAPS AT END OF CONDUIT.

### MATERIALS FURNISHED AND INSTALLED BY NHEC

- **POLE**
  - SERVICE DROP Conductors, Wire Holder & Connectors*
  - "NOTE: Connectors for services over 500 MCM will be furnished by consumer"

- **GROUND WIRE**
  - GROUND ROD AND CONNECTOR

- **3" OR 4" WEATHER HEAD**

- **2" OR 4" CONDUIT**

- **2" OR 4" COUPLING**

- **CONDUIT STRAPS**
  - REDUCER TO 2" OR 3"

---

**CONSTRUCTION STANDARDS**

- **SINGLE RESIDENCE**
  - 400 AMP SERVICE OR LESS

- **SECONDARY POLE WITH CLIPS**

---

**NOTES:**

1. ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
2. ALL CONSUMER FURNISHED MATERIAL TO BE ON HAND, AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO TIME OF INSTALLATION OF EQUIPMENT ON POLE BY NHEC PERSONNEL.
3. CONDUIT TO BE ON QUADRANT OF POLE OPPOSITE FLOW OF TRAFFIC.
4. FOR TRENCH SPECIFICATIONS, REFER TO NHEC DISTRIBUTION STANDARDS.
5. AN ELECTRICAL GRADE SCHEDULE 40 PVC 90° SWEEP WITH A MINIMUM RADIUS OF 36 INCHES MAY BE SUBSTITUTED IN STRAIGHT RUNS BETWEEN RISER POLE AND METER FOR 500 USE LESS THAN 150 FEET, FOR 400 USE LESS THAN 200 FEET, AND FOR 100 USE LESS THAN 200 FEET IN LENGTH. IF RUNS EXCEED THESE LIMITS, THEN ALL 90° SWEEPS MUST BE GALVANIZED STEEL AND BONDED.
6. GALVANIZED STEEL CONDUIT MUST BE BONDED TO GROUND WIRE, AS REQUIRED.
7. REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS".
**MATERIALS FURNISHED AND INSTALLED BY CONSUMER**

1. **3" OR 4" CONDUIT**  
   CONDUIT MAY BE EITHER SCHEDULE 80 PVC OR GALVANIZED STEEL & INSULATED BUSHING.

2. **PIPE STRAPS**

3. **3" OR 4" SLIP JOINT**  
   FROST HEAVE PROTECTION INSTALLED ABOVE GRADE.

4. **3" OR 4" CONDUIT (IF NEEDED)**  
   SCHEDULE 40 PVC, BELOW FINISH GRADE.

5. **3" OR 4" 90°, 36" RADIUS SWEEP**  
   (SEE NOTE 8)

6. **3" OR 4" ADAPTER (IF NEEDED)**

7. **GROUND WIRE**  
   NO. 6 COPPER (MIN. SIZE) BONDED TO GALVANIZED STEEL CONDUIT BY CONSUMER AS READ.

8. **GROUND ROD CONNECTORS**

9. **GROUND RODS**  
   (2) MIN. 6'-0" x 5/8" DIAMETER COPPER CLAD.

10. **METER SOCKET**  
    SOCKET MUST HAVE INTEGRATED MAIN CIRCUIT BREAKER(S), TO BE SECURED ATTACHED TO BUILDING BY CONSUMER.

11. **GROUND CLAMP**  
    A GROUND CONNECTION MUST BE VISIBLE IF THE GALVANIZED SWEEP EXTENDS ABOVE GROUND.

12. **CABLE**  
    2' LENGTH OF #6 CU WIRE FOR NHEC TO CONNECT TO THE GROUND ROD.

13. **CAUTION RIBBON**  
    RED, 8" WIDE CAUTION RIBBON, MUST SAY "ELECTRICAL LINE BURIED BELOW ".

14. **1/4" POLYPROPYLENE STRING**  
    INSTALLED IN ALL CONDUITS WITH STRING EXPOSED AND TIED OFF AT ENDS THRU CAPS AT END OF CONDUIT.

**NOTES:**

1. PLEASE CALL THE DISTRICT OFFICE OF NHEC AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.

2. ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.

3. ALL SERVICE ENTRANCE WIRING MUST BE COMPLETE AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO THE TIME OF INSTALLATION OF THE UNDERGROUND SERVICE LATERAL CONDUCTORS BY NHEC.

4. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES, WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.

5. FOR TRENCH SPECIFICATIONS, REFER TO COOPERATIVE DISTRIBUTION STANDARDS.

6. AN ELECTRICAL GRADE SCHEDULE 40 PVC 90° SWEEP WITH A MINIMUM RADIUS OF 36 INCHES MAY BE SUBSTITUTED IN STRAIGHT RUNS BETWEEN RIBBON POLES AND METER FOR 500 FEET OR LESS THAN 500 FEET, FOR 400 FEET LESS THAN 200 FEET, AND FOR 100 FEET LESS THAN 200 FEET IN LENGTH. IF RUNS EXCEED THESE LIMITS, THEN ALL 90° SWEEPS MUST BE GALVANIZED STEEL AND BONDED.

7. FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.

8. REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS."

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**CONSTRUCTION STANDARDS**

**ENTRANCE INSTALLATION SINGLE RESIDENCE**

**USE 3**

ISSUE DATE: 06/05
MATERIALS FURNISHED AND INSTALLED BY CONSUMER

1. SUPPORT POST (PRESERVATIVE TREATED)
   4" x 8" MIN, SQUARE OR 8" DIA, MIN, ROUND.

2. PIPE STRAPS

3. 3" OR 4" CONDUIT
   CONDUIT MAY BE EITHER SCHEDULE 80 PVC
   OR GALVANIZED STEEL & INSULATED BUSHING.

4. 3" OR 4" SLIP JOINT
   FROST HEAVE PROTECTION
   INSTALLED ABOVE GRADE

5. 3" OR 4" CONDUIT (IF NEEDED)
   SCHEDULE 40 PVC, BELOW FINISH GRADE.

6. 3" OR 4" 90°, 36" RADIUS SWEEP
   (SEE NOTE 7).

7. 3" OR 4" ADAPTER (IF NEEDED)

8. GROUND WIRE
   NO. 6 COPPER (MIN. SIZE), BONDED
   TO GALVANIZED STEEL CONDUIT BY
   CONSUMER AS RECEIVED.

9. GROUND ROD CONNECTORS

10. GROUND RODS
    3/8" MIN. 8"-0" x 8"-6" DIAMETER COPPER CLAD.

11. METER SOCKET
    SOCKET MUST HAVE INTEGRATED
    MAIN CIRCUIT BREAKER(S), TO BE
    SECURELY ATTACHED TO POST
    BY CONSUMER.

12. GROUND CLAMP
    A GROUND CONNECTION MUST BE VISIBLE IF
    THE GALVANIZED SWEEP EXTENDS ABOVE GROUND

13. CABLE
    2' LENGTH OF #6 CU WIRE FOR NHCE TO
    CONNECT TO THE GROUND ROD

14. CAUTION RIBBON
    RED, 6" wide CAUTION RIBBON, MUST SAY
    "ELECTRICAL LINE BURIED BELOW."

15. 1/4" POLYPROPYLENE STRING
    INSTALLED IN ALL CONDUITS WITH STRING
    EXPOSED AND TIED OFF AT ENDS THRU
    CAPS AT END OF CONDUIT.

SCHEDULE 40 PVC CONDUIT,
(3" FOR 200 AMP SERVICE, &
4" FOR 400 AMP SERVICE),
TO POLE LOCATION FURNISHED
AND INSTALLED BY CONSUMER.

NOTES:

1.) PLEASE CALL THE DISTRICT OFFICE OF NHCE AND MAKE ARRANGEMENTS TO HAVE THE METER LOCATION APPROVED BEFORE
    MAKING ANY CHANGES IN YOUR PRESENT ENTRANCE OR INSTALLING A NEW ENTRANCE.

2.) ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.

3.) ALL SERVICE ENTRANCE WIRING MUST BE COMPLETE AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO THE TIME
    OF INSTALLATION OF THE UNDERGROUND SERVICE LATERAL CONDUCTORS BY NHCE.

4.) ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES,
    WHERE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.

5.) FOR TRENCH SPECIFICATIONS, REFER TO COOPERATIVE DISTRIBUTION STANDARDS.

6.) HOME OWNER METER LOCATION SHALL BE DETERMINED BY NHCE REPRESENTATIVE, DEPENDING ON LOCATION, NATIONAL ELECTRIC CODE MAY
    REQUIRE A DISCONNECT DEVICE.

7.) AN ELECTRICAL GRADE SCHEDULE 40 PVC 90° SWEEP WITH A MINIMUM RADIUS OF 36 INCHES MAY BE SUBSTITUTED IN STRAIGHT RUNS
    BETWEEN RISER POLE AND METER FOR 500 FOOT LESS THAN 50 FEET, FOR 400 FOOT LESS THAN 200 FEET, AND FOR 100 FOOT
    LESS THAN 200 FEET IN LENGTH. IF RUNS EXCEED THESE LIMITS, THEN ALL 90° SWEEPS MUST BE GALVANIZED STEEL AND BONDED.

8.) FOUR WIRE CABLE MUST BE INSTALLED FROM METER SOCKET TO DISTRIBUTION PANEL.

9.) REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS".

CONSTRUCTION STANDARDS
REMOTE METER LOCATION
ENTRANCE INSTALLATION
SINGLE RESIDENCE

New Hampshire
Electric Co-op
A Sustainable Energy
Cooperative

USE 4
ISSUE DATE: 06/05

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**MATERIALS FURNISHED AND INSTALLED BY CONSUMER**

1. **4" CONDUIT**
   SCHEDULE 80 PVC
2. **4" 90°, 36" RADIUS SWEEP**
   GALVANIZED STEEL
3. **4" ADAPTER**
   (IF NEEDED)
4. **4" CONDUIT**
   SCHEDULE 40 PVC
5. **CONDUIT END CAPS**
6. **1/4" POLYPROPYLENE STRING**
   INSTALLED IN ALL CONDUITS WITH STRING EXPOSED AND "TIED OFF" AT ENDS THRU CAPS AT END OF CONDUIT.
7. **GROUND CLAMP**
   A GROUND CONNECTION MUST BE VISIBLE IF THE GALVANIZED SWEEP EXTENDS ABOVE GROUND
8. **CABLE**
   2" LENGTH OF #6 CU WIRE FOR NHEC TO CONNECT TO THE GROUND ROD
9. **#6 GROUND WIRE**
10. **CAUTION RIBBON**
    RED, 6" WIDE CAUTION RIBBON, MUST SAY "ELECTRICAL LINE BURIED BELOW".

**STANDOFF BRACKET IMPORTANT NOTES:**

CONTRACTOR SWEEPS CONDUIT TO 7-1/2" FROM FACE OF POLE.
NHEC PERSONNEL WILL PROVIDE A STANDOFF BRACKET TO ASSIST STEEL SWEET DISTANCE TO THE POLE.

**STANDOFF BRACKET**

**TOP VIEW**

**NOTES:**

1.) ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
2.) ALL CONSUMER FURNISHED MATERIAL TO BE ON HAND, AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO TIME OF INSTALLATION OF EQUIPMENT ON POLE BY NHEC PERSONNEL.
3.) CONDUIT TO BE ON QUADRANT OF POLE OPPOSITE FLOW OF TRAFFIC.
4.) FOR TRENCH SPECIFICATIONS, REFER TO NHEC DISTRIBUTION STANDARDS.
5.) REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS."
### Installation Requirements for Underground Service

#### Materials Furnished and Installed by Consumer

1. **4" Conduit**
   - Schedule 80 PVC
2. **4" 90°, 36" Radius Sweep**
   - Galvanized Steel
3. **4" Adapter**
   - (if needed)
4. **4" Conduit**
   - Schedule 40 PVC
5. **Conduit End Caps**
6. **1/4" Polypropylene String**
   - Installed in all conduits with string exposed and tied off at ends thru caps at end of conduit.
7. **#6 Ground Wire**
8. **Ground Clamp**
   - A ground connection must be visible if the galvanized sweep extends above ground.
9. **Cable**
   - 2' length of #6 Cu wire for NHCE to connect to the ground rod.
10. **Caution Ribbon**
    - Red, 6" wide caution ribbon, must say "Electrical line buried below."

#### Standoff Bracket Important Notes:

Contractor sweeps conduit to 7-1/2" from face of pole.

NHCE personnel will provide a standoff bracket to assist steel sweep distance to the pole.

#### Standoff Bracket Top View

- Conduit approx. 7-1/2" from face of pole
- 7-1/2" max

#### Notes:

1. All conduit and accessories must meet electrical grade specifications.
2. All consumer furnished material to be on hand, and all necessary excavation and conduit ready prior to time of installation of equipment on pole by NHCE personnel.
3. Conduit to be on quadrant of pole opposite flow of traffic.
4. For trench specifications, refer to NHCE distribution standards.
5. Refer to "Installation requirements for underground conduit systems."
**PAD & COVER REQUIREMENTS**

For single phase transformers use pad U5-5A and when used as a pulling vault use use cover U7-5B. (Not shown in top view)

**INSTALLATION REQUIREMENTS**

1. If the vault is cut into an embankment, NHEC may require a retaining wall either in front or behind the vault to prevent material from spilling into or away from the vault.

2. Top of upper section of vault shall be no lower than six inches above edge of roadway.

3. All vaults will be constructed with a drainage system of approved pipe material to drain water that may penetrate the vault. The piping shall originate at the lowest point inside the vault and be routed to free air at an elevation below its origination that promotes drainage.

4. If vault is located near the traveled way, NHEC may require a protective structure to prevent damage.

5. Seal all knockouts after conduit is placed.

6. Concrete shall have a compressive strength of 5000 P.S.I. after 28 days when tested in accordance with ASTM C-39-72(Latest Edition).

7. Refer to "Installation Requirements for underground conduit systems".

**CONSTRUCTION STANDARDS**

**VAULT ASSEMBLY**

(INDIVIDUAL SERVICE ONLY)
INSTALLATION REQUIREMENTS

1. IF THE VAULT IS CUT INTO AN EMBANKMENT, NH EC MAY REQUIRE A RETAINING WALL EITHER IN FRONT OR BEHIND THE VAULT TO PREVENT MATERIAL FROM SPILLING INTO OR AWAY FROM THE VAULT.

2. TOP OF UPPER SECTION OF VAULT SHALL BE NO LOWER THAN SIX INCHES ABOVE EDGE OF ROADWAY.

3. ALL VAULTS WILL BE CONSTRUCTED WITH A DRAINAGE SYSTEM OF APPROVED PIPE MATERIAL TO DRAIN WATER THAT MAY PENETRATE THE VAULT. THE PIPING SHALL ORIGINATE AT THE LOWEST POINT INSIDE THE VAULT AND BE ROUTED TO FREE AIR AT AN ELEVATION BELOW ITS ORIGINATION THAT PROMOTES DRAINAGE.

4. IF VAULT IS LOCATED NEAR THE TRAVELED WAY. NH EC MAY REQUIRE A PROTECTIVE STRUCTURE TO PREVENT DAMAGE.

5. SEAL ALL KNOCKOUTS AFTER CONDUIT IS PLACED.


7. REFER TO "INSTALLATION REQUIREMENTS FOR UNDERGROUND CONDUIT SYSTEMS".

PAD & COVER REQUIREMENTS

1. FOR SINGLE PHASE 15 OR 25 KV TRANSFORMER (15-167 KVA), USE PAD U-6-5A & COVER U-7-5B.

2. FOR SINGLE PHASE 15 OR 25 KV 200 AMP SECTIONALIZING CABINET USE PAD U-6-5B & COVER U-7-5B.

3. FOR SPICING OR PULLING VAULT USE COVER U-7-5A & COVER U-7-5B.
NOTE:
1.) CONCRETE SHALL HAVE A COMPRRESSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION).
2.) USE WITH VAULT COVER U7-5B.
3.) CONTRACTOR SHALL SUPPLY MEANS TO SECURE CABLE OPENING FROM ENTRY.
4.) TEMPORARY COVER AT CABLE OPENING MAY BE USED WITH OTHER COVERS AND PADS AS REQUIRED.
NOTE:
1.) CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION)
2.) APPROXIMATE WEIGHT: 1515 LBS.
ONE OR MORE SECONDARY CIRCUITS WITH TELEPHONE AND/OR CABLE TV

NOTE:
1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.
2. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.

WHEEL COMPACTED BACKFILL, NO ROCKS LARGER THAN 6" DIAMETER  
SAND OR FINE BACKFILL, NO ROCKS LARGER THAN 1" DIAMETER  
UNDISTURBED EARTH
ONE OR MORE PRIMARY CIRCUITS WITH TELEPHONE AND/OR CABLE TV

NOTE:
1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.
2. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.
CONCRETE CAPPED TRENCH

NOTE:
1. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND 4" TO TRENCH SIDEWALLS.
2. CONCRETE TO BE 5000 PSI
3. TRENCH TO BE INSPECTED BY A REPRESENTATIVE OF NHEC PRIOR TO BACKFILLING.
1.) CONCRETE SHALL HAVE A COMPRRESSIVE STRENGTH OF 5000 P.S.I. AFTER 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C 39-72 (LATEST EDITION).