minnesota power

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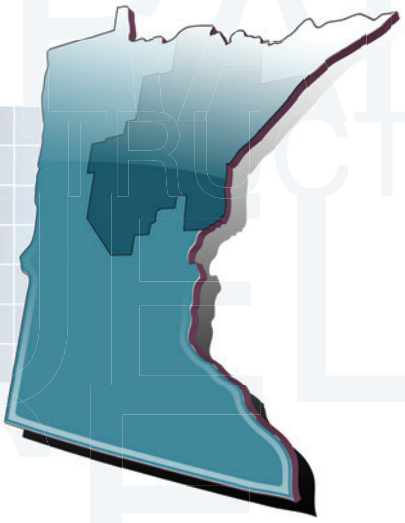


Minnesota Power

construction guide Commercial Edition

Minnesota Power
Construction Guide
Commercial Edition

Table of Contents

Your Commercial Electric Service

The information contained in this handbook will help you understand the steps involved in establishing electric service. We outlined each step in the process, including both an overview and detailed information. A well-prepared application, a well-prepared site and good communication with Minnesota Power are the best ways to keep your project on track.

Step 1. Application and Planning

Your Role: Minnesota Power will be happy to serve your energy needs if your property is within Minnesota Power's service territory. To determine if Minnesota Power will be your electric service provider, please visit www.mnpower.com, call the New Construction Center at 1-877-535-0394 or 218-720-2644 or e-mail us at: newconstruction@mnpower.com.

Next, complete and return the *Application for Service* (form 6034C). Mail, fax or e-mail both your application and your site plan to:

Mail: Minnesota Power
Attn: New Construction Center
PO Box 1001
Duluth, MN 55806-1001

Fax: 218-720-2795

E-mail: newconstruction@mnpower.com

Contractors and Engineers use Minnesota Power's Electrical Design Preconstruction Form (6034E) to obtain electric utility information for your pre-construction bid.

Step 2. Confirmation

Our Role: After we receive your completed application, a Minnesota Power representative will contact you. They will discuss your electric service needs, and if needed, set up an appointment for a site visit. A Minnesota Power representative will provide site requirements and cost estimates after the site visit.

Step 3. Ready for Service

Your Role: Complete all of the requirements to prepare the site for service installation.

We ask that the customer prepares the site as follows:

- Mark all property corners with stakes, with "Property Corner" labeled on the stake.
- Identify approximate location where customer's electric service panel will be installed.
- Where Minnesota Power facilities are going to be installed, grade and landscape within six inches of final grade.
- A service path clear of obstructions from the Minnesota Power electric facilities to the meter location.

  - A minimum 10-foot-wide path for underground installation.
  - A minimum 30-foot-wide path for overhead installation.
- Locate and mark privately-owned underground facilities with stakes, spray paint or flags.
- In the event that we need to cross your driveway with Minnesota Power underground electric facilities, we ask that a four-inch Schedule 40 conduit be installed, extended 10 feet beyond each side of the driveway.
- If you, the customer, will require any excavation at your site, please visit the Gopher State One Call Web site: www.gopherstateonecall.org, or dial 811 to have underground, utility-owned facilities marked.

Location of Underground Facilities

It is important for Minnesota Power to know the location of all existing and planned facilities, structures or other potential obstructions to ensure a clear path for your electric service lines. Be sure to clearly mark these facilities as noted on your submitted site plan.

Utility-owned Facilities

Minnesota Power will contact Gopher State One Call to have underground, utility-owned facilities located and marked on your property, for example: water, gas, electric, sewer, telephone and cable. Gopher State One Call requires each party to obtain their own One Call ticket for excavation.

Privately-owned Facilities

The customer is responsible for the location and marking of privately-owned underground facilities, for example: water, gas, electric, sewer, telephone and cable.

Check out the Gopher State One Call site.

Minnesota Power (and/or its contractors) will not be held responsible for damage to private underground facilities that have not been properly identified and marked.

For further information on companies that provide private locating, please contact Minnesota Power at 218-720-2757.

Electrical Inspections

Minnesota Power requires a copy of the *Request for Electrical Inspection* or verification from the local electrical inspector prior to energizing any service.

Outside the city of Duluth

Within the state of Minnesota jurisdictional area, the electrical contractor will be responsible for filing a *Request for Electrical Inspection* with the state of Minnesota and for providing a copy to Minnesota Power.

For a list of licensed and bonded electrical contractors, go to: http://www.dli.mn.gov/, or call 651-284-5026.

Submit the form to the state along with the appropriate fees. If you have any questions regarding the fees, please contact the state of Minnesota at 651-284-5026. Keep a copy of the form for your own records.

Send a copy of the form to:

Mail: Minnesota Power
Attn: New Construction Center
PO Box 1001
Duluth, MN 55806-1001

Fax: 218-720-2680

E-mail: newconstruction@mnpower.com

Inside the city of Duluth

Within the city of Duluth, it is the responsibility of the electrical contractor to contact the city of Duluth for the electrical inspection. Once the inspection has been completed, the city electrical inspector will notify Minnesota Power.

If you have any questions regarding electrical codes, please contact your electrical contractor or the local inspector.

Right-of-way

Refer to page 8 for detail regarding easements, permits and licenses.

Fees

Payment for line extension and/or temporary electric service, if required, must be received by a Minnesota Power representative prior to scheduling your installation. Minnesota Power does not offer any financing options. Full payment can be made in the form of check, money order, purchase order, credit card (Visa, MasterCard, Discover) or debit card.

Step 4. Scheduling and Installation

Our Role: Minnesota Power will make every effort to meet your requested completion date. The amount of time it takes to complete the installation depends on a variety of factors. Once all requirements are met, the work will be scheduled.

Your Role: During this step of the process, make sure your site remains ready for service. Inform your builder to keep the path where the new service will be installed clear of obstructions. Please be sure to keep us informed of any design or scheduling changes.

Please provide the name of the person that we can speak with about the details and coordination of your project.

Step 5. Billing

Our Role: Billing will begin as soon as the electric meter is installed. The bill will include both a monthly minimum service charge and an energy usage charge.

Your Role: The new occupant/business owner is responsible for contacting us to have the electric bill transferred into their name. This is only necessary if the account was previously in the name of the builder/general contractor.

Cost to Provide Power to Your Site

Basic Costs

The Minnesota Power representatives will design the electrical service extension, determine the locations of facilities and estimate extension costs. Estimates depend upon location of existing distribution facilities, location of customer's buildings on the property and the design decision of overhead or underground facilities.

Extensions

Single Phase Extensions less than 1,000 feet under normal construction circumstances are based upon a unit cost per linear foot (**subject to change upon annual review**).

Examples:

If the extension cost ***does not exceed $850*** and Minnesota Power's standard type construction is used in making the extension, the customer will not be required to make payment for the extension.

Minnesota Power extends 50' x $12/foot = $600
$600 is less than $850
The customer owes $0

If the extension cost ***exceeds $850***, the customer will be required to make a payment of the amount in excess of $850. In the example below, the customer would be required to make a payment of $1,250.

Minnesota Power extends 175' x $12 = $2,100
$2100 is greater than $850
$2100 - $850 = $1,250
The customer owes $1,250

Single phase line extensions over 1000 ft and all 3 phase line extensions are based upon estimated cost. Your Minnesota Power representative will calculate the cost of the extension based upon labor and materials.

For additional details see *Minnesota Power—Electric Rate Book Vol. 1, Section VI "Extension Rules," (*page 4-4.5).

If the Extension cost exceeds $850 and is for non-single phase service, the customer has the following options:

1. Pay Minnesota Power in advance a contribution for the extension cost in excess of $850, or
2. No advance contribution for extension costs will be required, if the customer enters into a five year Electric Service Agreement where Minnesota Power's costs relating to the entire extension are equal to or less than three times the Customers guaranteed annual revenues, or
3. If the customer enters into a five year Electric Service Agreement where Minnesota Power's costs relating to the entire extension are greater than three times the customer's guaranteed annual revenues, the customer will be required to pay Minnesota Power in advance a contribution for the balance of the extension cost not supported by guaranteed annual revenues. The annual revenues used in the Electric Service Agreement shall be estimated by Minnesota Power and determined under the existing rate schedule for providing service to the customer.

Additional Costs not apparent at the time the estimate is generated will be billed accordingly. Examples include subsurface impediments, frost, and any required route or design changes.

Temporary Service Installation

Temporary service is defined in Minnesota Power's Extension Rules as "service to a customer whose use of that service, in the company's judgment, may be less than five years duration."

A customer may choose to have a temporary service during the construction phase of the project. The customer provides the temporary service structure including, but not limited to, proper timber construction with sufficient bracing and approved meter socket. Temporary services should not be located closer than 10 feet from the Minnesota Power facilities (examples: pole, pad-mounted transformer).

Cover-up

The following are requirements of OSHA regulation sections 1926.416(a)(1) and 1926.550(a)(15).

1926.416(a)(1): Protection of employees. No employer shall permit an employee to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means. (This requires a minimum clearance of 10 feet for lines rated 50 kV or less).

1926.550(a)(15): Cranes. Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines shall be operated proximate to power lines only in accordance with the following (i) For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet.

It is the responsibility of the contractor to contact Minnesota Power to provide cover-up.

Contact central dispatch area for scheduling and fee schedule at 218-720-2757.

Right-of-way

Easements, Permits or Licenses

Minnesota Power's Extension Rules require customers to provide "satisfactory **right-of-way** necessary for the construction, operation and maintenance of the extension (including any tree-trimming rights) both for the purpose of providing access to the extension on the customer's premises and for continuing the extension to other customers, has been furnished without expense to the company" (Extension Rules, Section 7, Paragraph 3).

Providing satisfactory "**right-of-way**" requires that we have a general understanding of the term to mean "**a strip of land used by a utility company and others AND the right to pass over the land of another**."

- Right-of-way involves "land," both **public** land and **private** land.
  - **Public land**—involving streets, roads, highways, forest lands, wetlands, lakes, rivers, streams and trails—will (almost always) require either a permit or a license.
  - **Private land**—involving commercial and rural property, including railroad and mining property—can require an easement and, on occasion, require a license.
- Right-of-way involves (primarily) three forms of legal documentation:
  - **Easement**—a written document giving one party (grantee) the right and privilege to use the land of another (grantor) for a special purpose.

    Why easements? Legal protection of distribution/transmission facilities from trespass violation (trespass equals treble damage awards in Minnesota)...
  - **Permit**—a written document giving one party (permittee) permission and personal privilege to do some act on the land or right-of-way of another (permitter), usually for an unspecified duration of time (no term) and for a fee.
  - **License**—a written document giving one party (licensee) permission and personal privilege to do some act on the land or right-of-way of another (licensor), usually for a specified duration of time (term) and for a fee.

Your Minnesota Power representative will help determine if the line extension will affect public or private land and identify the legal document that will be necessary in order for Minnesota Power to extend electric service to your business. All expenses or costs involving right-of-way (acquisition of easements, permits or license) will be paid by the customer.

Utility Easement Restrictions

Minnesota Power suggests that easements remain clear of any obstructions that will make it difficult to maintain or replace the existing facilities. Keeping utility easements clear helps utility companies perform routine maintenance (e.g., replace a pole), construct improvement projects (e.g., install a new sanitary sewer), and repair utility lines during emergencies (e.g., remove a tree which has fallen on a power line during a lightning storm). Minnesota Power will make an effort to limit damage to landscaping; all damages to landscaping located within the boundaries of the utility easement are the responsibility of the landowner.

Commercial Programs

Dual Fuel

The Dual Fuel interruptible service rate is designed for electric heating. To qualify for this special low rate, you must have a nonelectric backup heating system. The Dual Fuel system consists of an electric service entrance and panel connected only to your electric heating equipment. This separate electric service for heat has its own meter and switch, called a socket interrupter, that is controlled by Minnesota Power. During times when demand on Minnesota Power's electric system is high or to perform necessary interruption tests, we can interrupt your Dual Fuel service. When this happens, your nonelectric backup heating system must be capable of meeting your heating needs. However, your backup system will never be required to provide more than 30 percent during any annual period. Electric service for your other appliances is not affected. A radio control system will be installed to interrupt the Dual Fuel service for varying lengths of time.

Conditions:

Electric heating systems can be convective baseboards, wall heaters and radiant slabs or ceilings, furnaces, plenum heaters, boilers and heat pumps.

Backup heating systems can be fueled by oil, wood, propane or natural gas. The backup system must be capable of continuous automatic operation to meet your total space or water heating needs. The business owner will receive a Dual Fuel heating agreement and the tax-exempt card after the meter is installed (all heating fuels in the state of Minnesota are tax exempt).

How to Participate:

Call Minnesota Power at 218-720-2644, for more information on the Dual Fuel program.

Controlled Access

Storage Heating Rate

The Storage Heating rate is designed around the ability to store energy for space heating and water heating. During off-peak hours from 11 p.m. to 7 a.m., when the cost of electricity and system demand is less, special storage heating equipment turns on and stores the energy needed for the balance of the day. A storage system can consist of thermal storage room units, a central storage furnace, a central hot water system or slab heat. Water heating on the storage rate generally requires a minimum of one 80-gallon electric water heater or two 52-gallon electric water heaters. Larger combinations may be necessary depending on hot water demand. Electricity to energize the heating equipment is on only between 11 p.m. and 7 a.m. This system is also known as controlled access or "ETS" (electric thermal storage).

Conditions:

To qualify for the Storage Heating rate, you must have sufficient storage capacity to meet your building's space or water heating needs. The business owner will receive a Storage Heating Agreement and the tax-exempt card after the meter is installed (all heating fuels in the state of Minnesota are tax-exempt).

How to Participate:

Call Minnesota Power at 218-720-2644, for more information on the Storage Heating program.

Minnesota Power Energy

Saving Tools and Information

The choice to be more energy efficient may be clear, but the starting point can be more difficult to determine. One of the best ways to answer the question "Where do I begin?" is by first understanding how you use energy and then learning more about the options available to you. Throughout the Power of One® Web site, Minnesota Power provides a number of tools, references and calculators to help you prioritize steps and develop and implement an action plan that's right for you.

Visit our Web site at http://www.mnpower.com/powerofone/one_business/ or call 218-355-3070, for more information about our programs, rebates and tools.

Outdoor and Area Lighting

Leasing outdoor lighting from Minnesota Power is quick, easy and economical. You can select an area light, which gives you a wide circle, or a floodlight to direct the illumination in one direction. Minnesota Power will install, replace and maintain your outdoor and area lighting service. The customer agrees to rent the area lights and necessary poles for a minimum of six months.

Contact Minnesota Power at 1-877-535-0394 or 218-720-2644 for new information on outdoor and area lighting services. *If interested, complete form 4789.*

High Pressure Sodium
8,500 lumen area light (100-watt)
14,000 lumen area light (150-watt)
23,000 lumen area light (250-watt)
23,000 lumen area floodlight (250-watt)
45,000 lumen area floodlight (400-watt)

Metal Halide
17,000 lumen floodlight (250-watt)
28,800 lumen floodlight (400-watt)
88,000 lumen floodlight (1000-watt)

Pole Rental
Rental of Pole

Scheduling

A well-prepared application and site, along with good communication with your Minnesota Power representative, is the best way to keep your project on track. The amount of time it takes to complete the installation depends on a variety of factors. The work order will not be released for scheduling until all required items on the checklist have been received. A minimum of two weeks should be expected before the work will begin. Weather, changing site conditions, pending service work already scheduled, extent of work to bring supply lines to property, restrictions such as permits and right-of-way, and other unforeseen circumstances all may delay progress.

Scheduling questions can be directed to your local Minnesota Power representative and/or Minnesota Power central dispatching area at 218-720-2757.

Please have the main breaker at the service panel turned off to ensure the safety of Minnesota Power field personnel when energizing your service.

Single Phase Installation

Installation Of Minnesota Power Electric Service

Your site will be reviewed to determine the nearest power source and meter location options for the installation of your new electric service. Unless customer voltage needs cannot be met, Minnesota Power distribution facilities will be located as far as 300 feet from your electrical service panel. Minnesota Power facilities will be located in a truck-accessible location to ensure ongoing access for maintenance. Design and installation of Minnesota Power facilities will be determined by Minnesota Power personnel and will be constructed according to Minnesota Power Engineering Standards and the National Electrical Safety Code (NESC).

Overhead Installation—Single Phase

Lot Line Metering—Company Standard

With lot line metering, company-provided meter enclosure on a company owned pole will be located at the lot line or in close proximity of Minnesota Power facilities. Your contractor can connect customer owned underground cable to the meter enclosure to provide you temporary construction power. Minnesota Power's lot line metering enclosures have a capacity of 200 amperes and provide connecting lugs for three sets of conductors; however, they do not provide space for individual breakers. You and/or your electrical contractor will need to arrange for an outdoor weatherproof load center, GFCI breakers or GFCI outlets and grounding for temporary service. Minnesota Power's point of service is at the bus work on the load side of the breaker.

If your Minnesota Power representative has determined that lot line metering is not appropriate for your installation, the following options may be applicable.

Overhead Installation—Single Phase

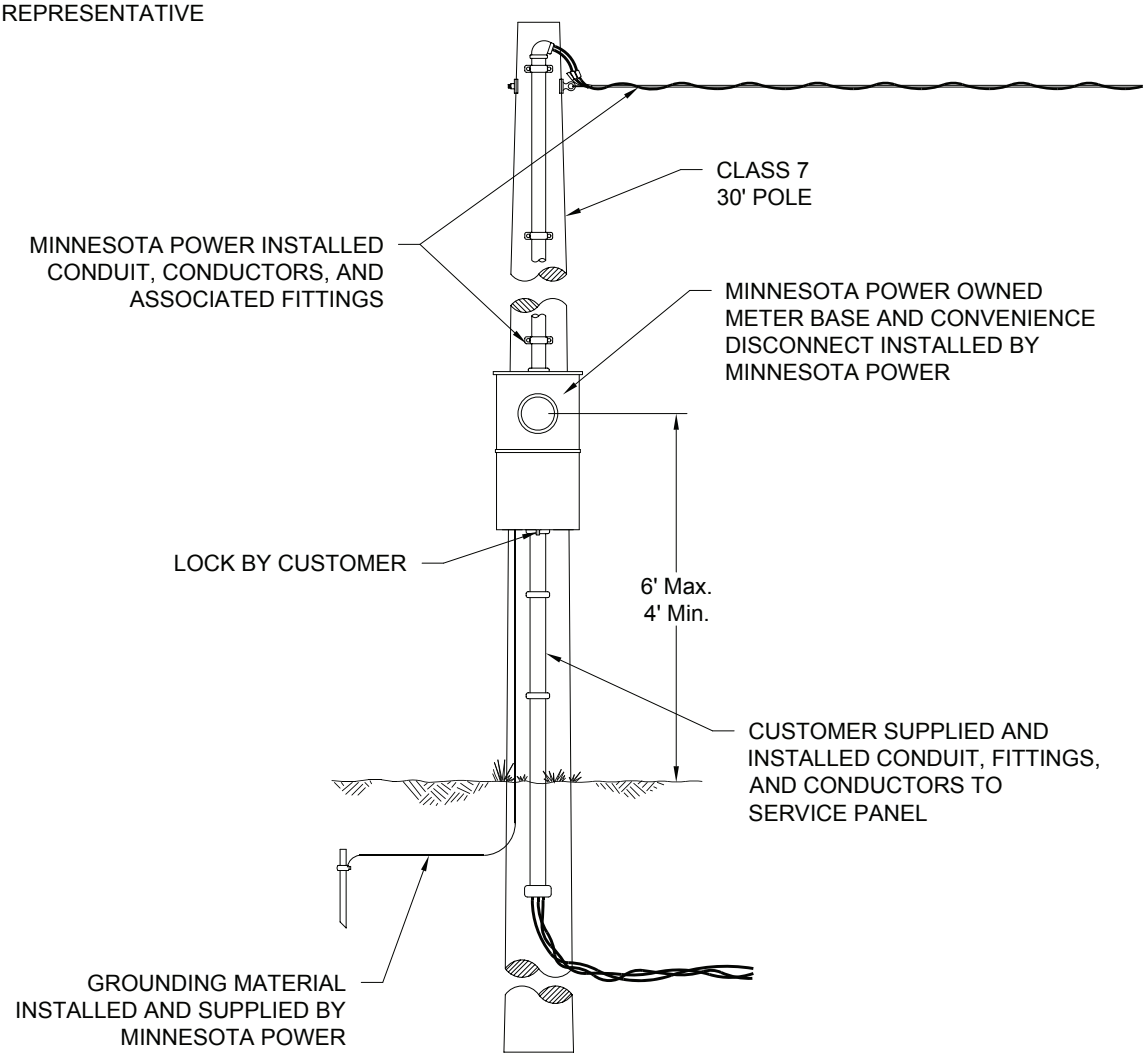
Overhead installation is the overhead electrical power line from Minnesota Power's utility pole to your meter location. The customer is responsible for sizing, purchasing, installing and maintaining the meter enclosure, riser pipe, weatherhead and Point of Attachment (POA).

The POA shall be located at a point readily accessible to Minnesota Power's distribution mains or service drop. The POA shall be of sufficient mechanical strength to support the wind- and ice-loaded weight of the service drop and shall be located as determined in conjunction with your Minnesota Power representative.

When multiple conduit risers or service masts are installed to support a single electric entrance, it is the customer's responsibility to provide the connector that ties the customer's conductors (wires) together and allows for a single point of connection to Minnesota Power's conductors.

Minnesota Power Owned Overhead Meter Pole 200 AMP Max

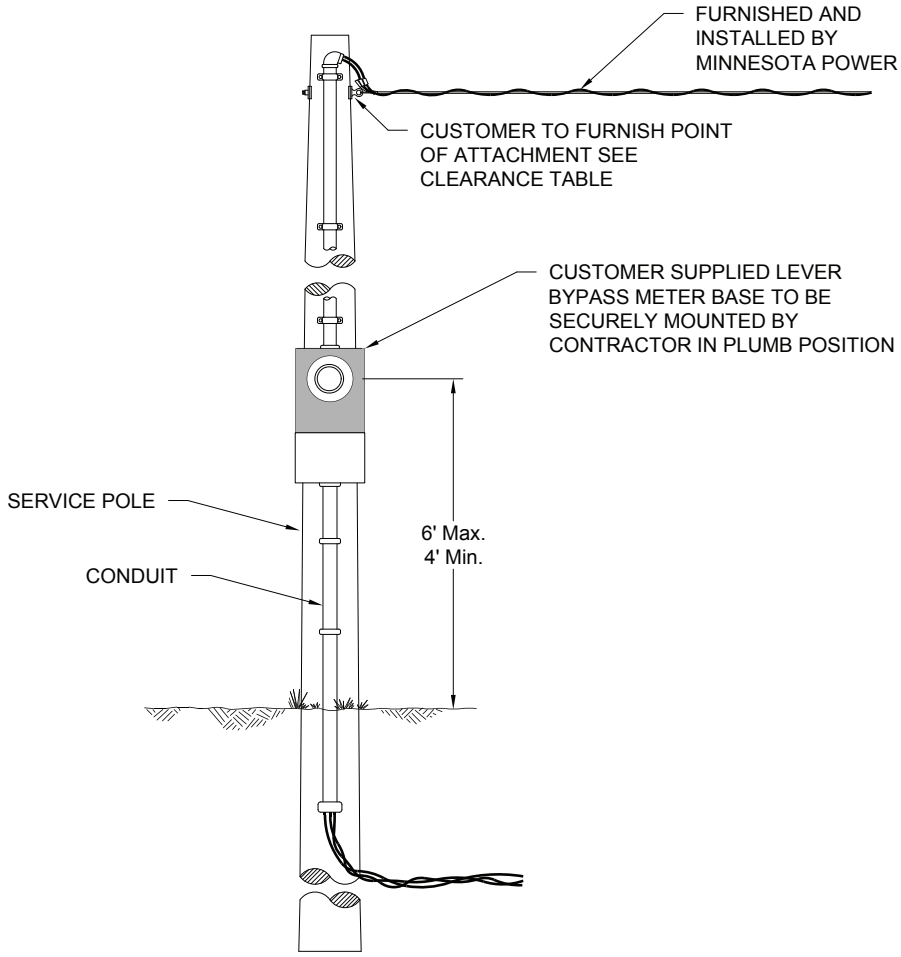
1. ALL MATERIALS AND INSTALLATION LABOR PROVIDED BY MINNESOTA POWER EXCEPT WHEN NOTED OTHERWISE
2. ALL CUSTOMER WORK MUST COMPLY WITH NEC AND ANY LOCAL CODES
3. MINNESOTA POWER MUST APPROVE LOCATION OF POLE
4. 200 AMP MAXIMUM SERVICE CAPACITY
5. A MINIMUM OF THREE (3) FEET OF UNOBSTRUCTED CLEARANCE AS MEASURED FROM THE SURFACE ON WHICH IT WAS MOUNTED, SHOULD BE MAINTAINED IN FRONT OF THE METER AND MINIMUM OF TWELVE (12) INCHES OF UNOBSTRUCTED SPACE SHOULD BE MAINTAINED ON ALL SIDES OF THE METER COVER. ANY DEVIATION FROM THESE SPACE REQUIREMENTS MUST BE MUTUALLY AGREED TO BY THE CUSTOMER, ELECTRICAL CONTRACTOR, APPROPRIATE INSPECTOR, AND MINNESOTA POWER METERING REPRESENTATIVE



"METER POLE INSTALLATION CAN BE ACCOMPLISHED ON SELECT COMPANY POLES. ANY DESIGN MUST ASSURE THAT THE POLE IS TRUCK ACCESSIBLE AND "CLEAR" OF OBSTRUCTING ELECTRIC EQUIPMENT. EXAMPLES OF NON-OBSTRUCTING EQUIPMENT WOULD INCLUDE CONDUCTORS, CROSS-ARMS, TRANSFORMERS, DOWN GUYS AND LEASE LIGHTING. POLES SUPPORTING SWITCHES, CAPACITOR BANKS, REGULATORS OR PRIMARY RISERS WILL NOT BE USED FOR METER POLE INSTALLATIONS."

(MPO_01-31-12)

Customer Owned Meter Pole Self Contained Meter 320 AMP Max



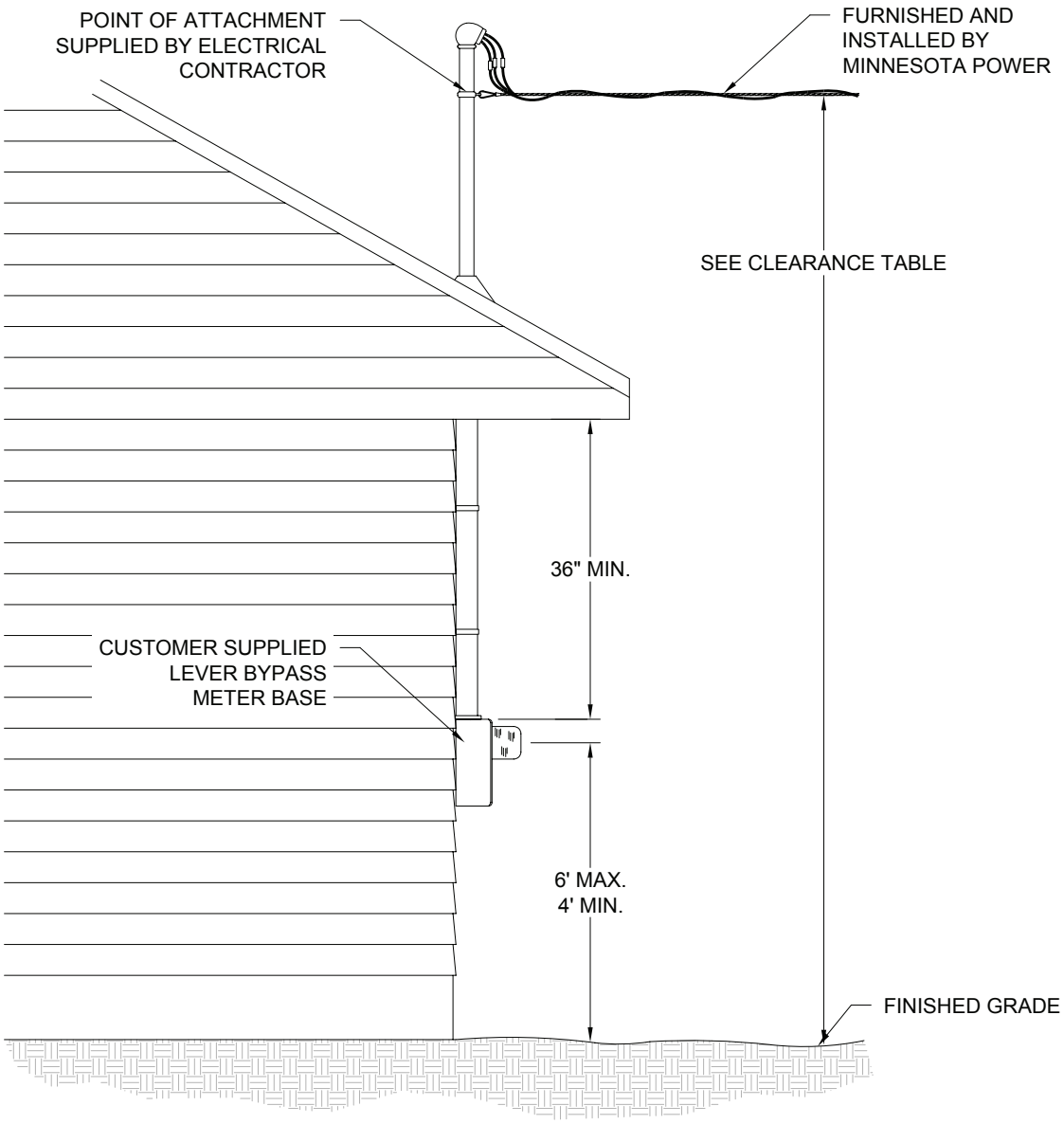
Clearance Table	
Over street, alley, public roadway, parking lot, drive-in, commercial, industrial and farm areas	16’ minimum
Over residential garage driveways	12’ minimum
Over areas accessible to pedestrians	12’ minimum
12’ requirement exception allows a reduction to 10’6” when insufficient building height and mast construction cannot reasonably meet the 12’ requirement.	

(OHpole_10-31-11)

Minnesota Power’s connectors at the point of attachment (POA) shall meet National Electrical Safety Code (NESC) minimum clearance. All customer owned equipment shall meet any applicable National Electric Code (NEC) requirements. A Minnesota Power representative will work with your electrical contractor to meet all national clearance requirements and applicable local and state codes

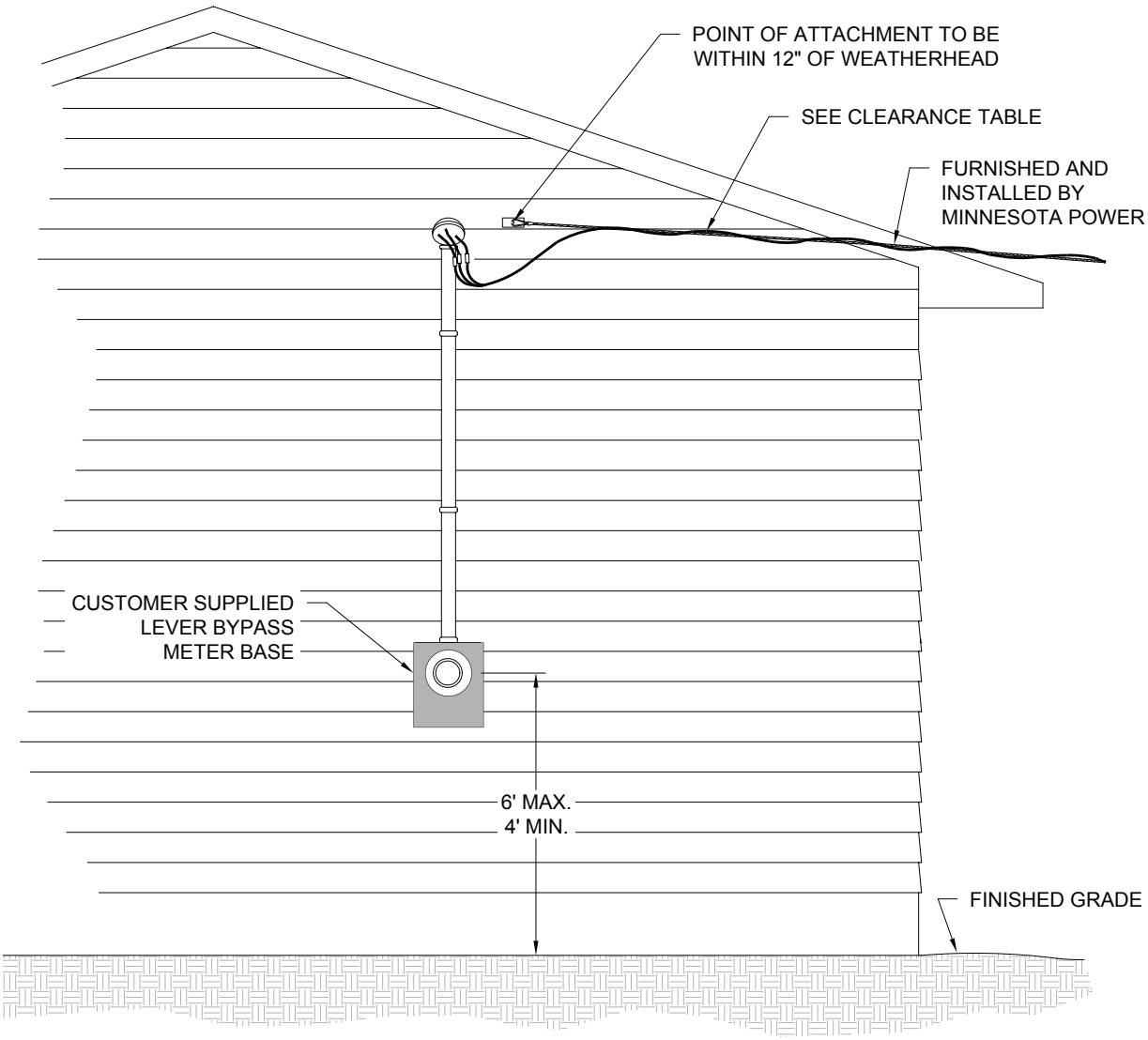
Customer Owned Structure Mounted Self Contained Meter

(OHservicemast_10-31-11)



Customer Owned Structure Mounted Self Contained Meter 320 AMP Max

(OHserviceattached_10-31-11)



Underground Installation—Single Phase

Lot Line Metering—Company Standard

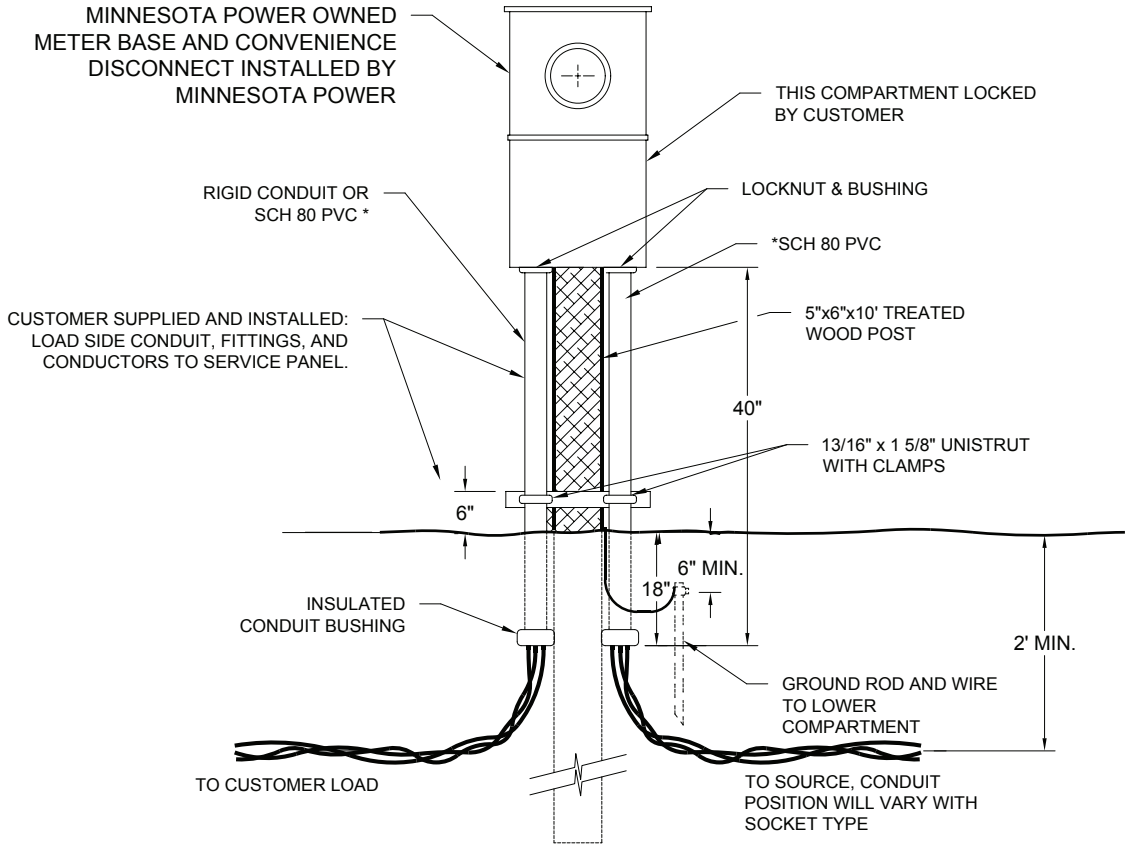
With lot line metering, a company-provided meter enclosure on a company owned wood pedestal will be located at the lot line or in close proximity of Minnesota Power facilities. Your contractor can connect customer owned underground cable to the meter enclosure to provide you temporary construction power. Minnesota Power's lot line metering enclosures have a capacity of 200 amperes and provide connecting lugs for three sets of conductors; however, they do not provide space for individual breakers. You and/or your electrical contractor will need to arrange for an outdoor weatherproof load center, GFCI breakers or GFCI outlets and grounding for temporary service. Minnesota Power's point of service is at the bus work on the load side of the breaker.

The customer is responsible for sizing, purchasing, installing and maintaining the underground conductor (cable) that connects to Minnesota Power's metering equipment or transformer.

Minnesota Power Owned Underground Meter Pedestal 200 AMP Max

(UGmeterped_10-31-11)

ALLOWS FOR UNDERGROUND LATERAL CONDUCTORS TO CUSTOMER WITH SERVICE RATED 200 AMP MAXIMUM.



NOTES:

1. ALL MATERIALS AND INSTALLATION LABOR PROVIDED BY MINNESOTA POWER EXCEPT THAT NOTED OTHERWISE.
2. ALL CUSTOMER WORK MUST COMPLY WITH NEC AND ANY LOCAL CODES.
3. MINNESOTA POWER MUST APPROVE LOCATION OF PEDESTAL.
4. PEDESTAL MUST BE BONDED TO ANY GROUNDED METALLIC DEVICE CLOSER THAN 8'.
5. PEDESTAL CANNOT BE LOCATED WITHIN 15 FT. OF ANY WELL.
6. A MINIMUM OF THREE (3) FEET OF UNOBSTRUCTED CLEARANCE, AS MEASURED FROM THE SURFACE ON WHICH IT WAS MOUNTED, SHOULD BE MAINTAINED IN FRONT OF THE METER AND A MINIMUM OF TWELVE (12) INCHES OF UNOBSTRUCTED SPACE SHOULD BE MAINTAINED ON ALL SIDES OF THE METER COVER. ANY DEVIATIONS FROM THESE SPACE REQUIREMENTS MUST BE MUTUALLY AGREED TO BY THE CUSTOMER, ELECTRICAL CONTRACTOR, APPROPRIATE INSPECTOR AND MINNESOTA POWER METERING REPRESENTATIVE.

If your Minnesota Power representative has determined that lot line metering is not appropriate for your installation, the following options may be applicable.

Underground Installation—Single Phase

The customer is responsible for sizing, purchasing, installing and maintaining the underground conductor (cable) that connects to Minnesota Power's metering equipment or secondary connection point.

Connecting to Pole-mounted Facilities—Single Phase

When connecting customer-owned underground service cable to Minnesota Power's pole-mounted transformer(s) or secondary wires, the customer will provide, own and maintain the cable, conduit for the riser, steel straps and weatherhead that will be mounted on the pole. Mounting height for weatherhead shall be one foot below Minnesota Power's neutral position. The conductor shall be brought to the base of the pole and assembled as follows:

Service is less than or equal to 200 amps

Minnesota Power personnel will secure the conductor to the pole and connect the customer-owned service wires as appropriate.

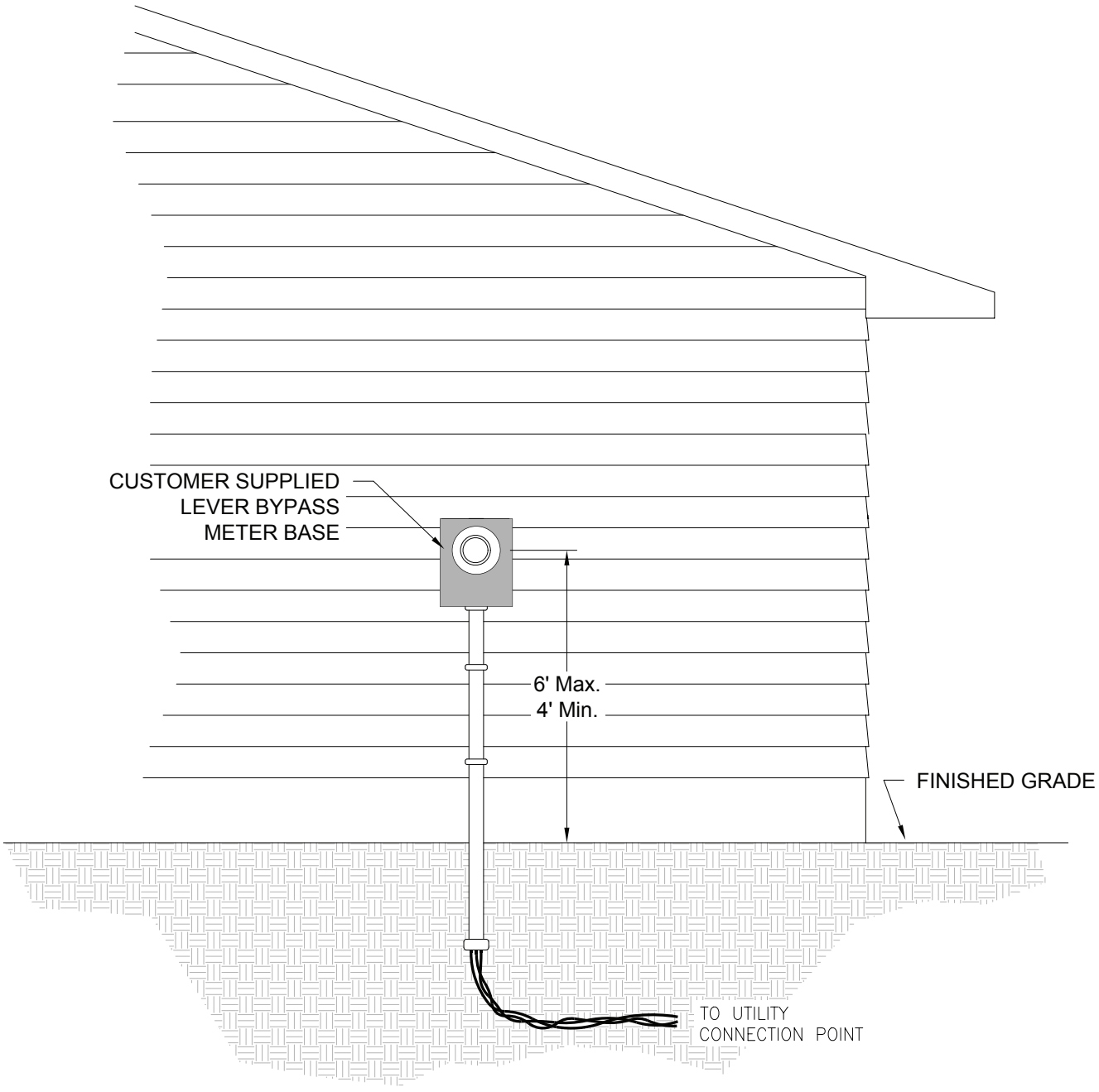
Service is greater than 200 amps

Minnesota Power personnel in conjunction with the customer shall jointly install the riser(s) and secure it (them) to the pole. Minnesota Power personnel will connect* the customer-owned service wires as appropriate.

**When multiple risers or service masts are installed to support a single electric entrance, it is the customer's responsibility to provide the connector that ties the customer's conductors together and allows for a single point of connection for the Minnesota Power conductors.* *(See diagrams page 22 and 23)*

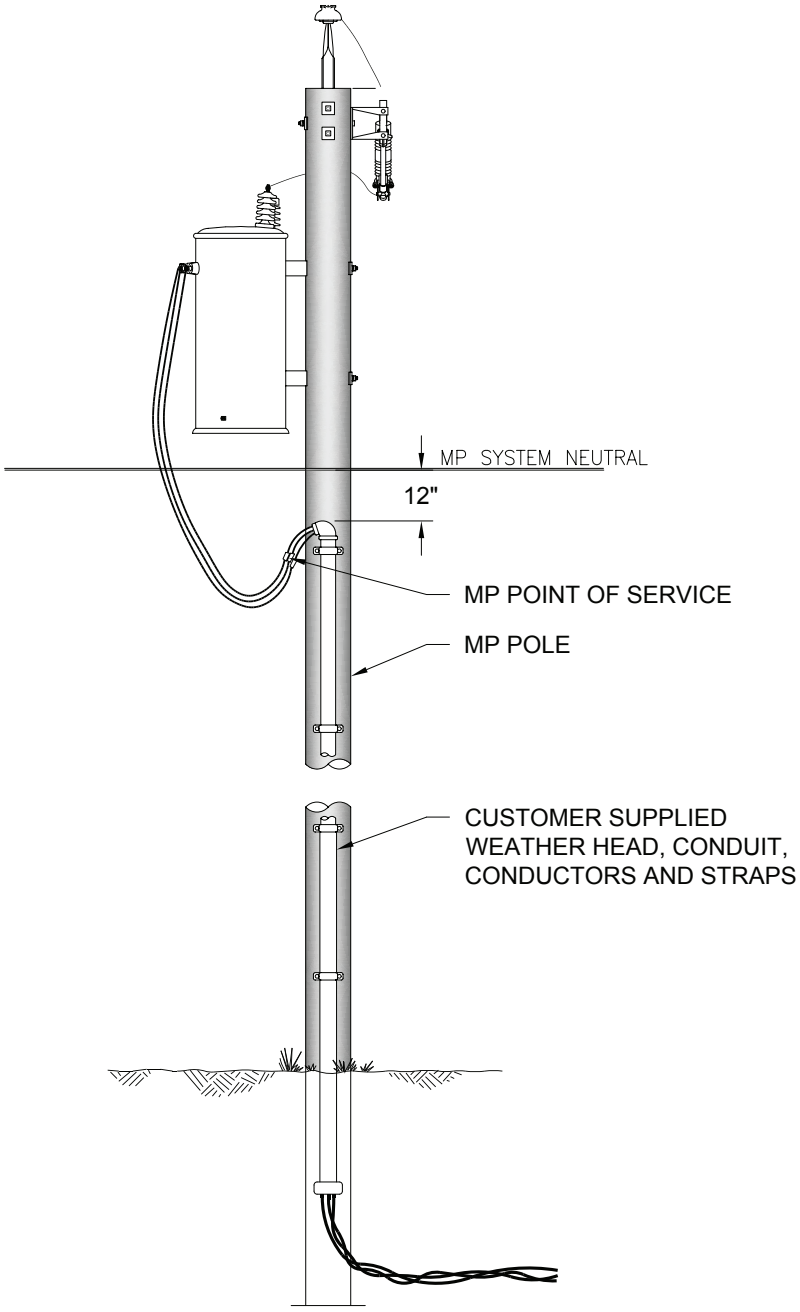
Customer Owned Structure Mounted Self Contained Meter 320 AMP Max

(UGmeterbldg_10-31-11)



Private Riser Single Service

(PrivRiser_1_01-31-12)

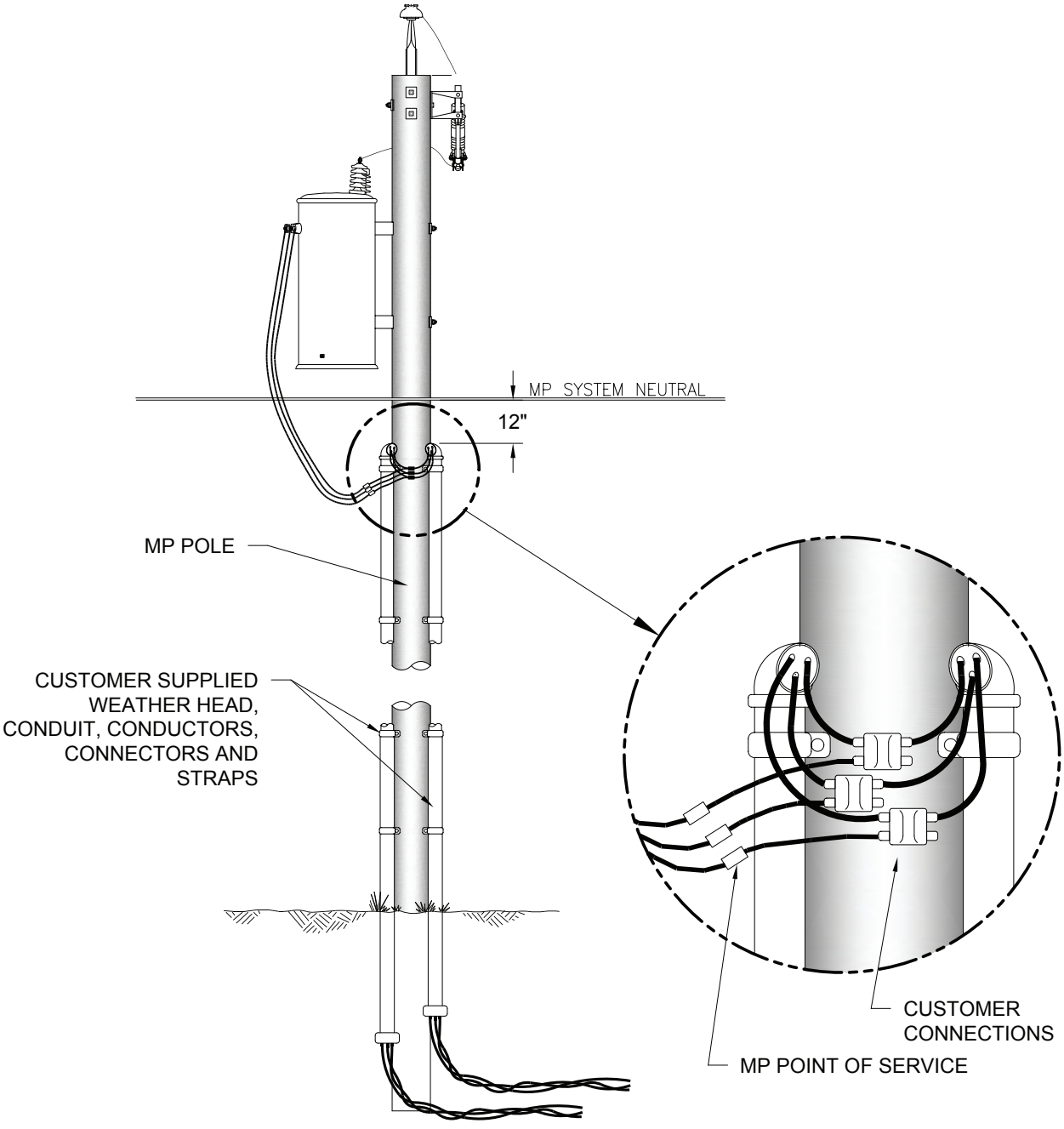


NOTE:

- INSTALLATION OF RISERS ON POLE TO BE DONE IN COORDINATION WITH MINNESOTA POWER.
- CONDUIT TO BE INSTALLED ON POLE WILL NOT ENCOMPASS AREA GREATER THAN 90 DEGREES. CONSULT WITH MINNESOTA POWER REPRESENTATIVE FOR LOCATION ON POLE.

Parallel Private Riser to Service

(PrivRiser_2_01-31-12)



NOTE:

- INSTALLATION OF RISERS ON POLE TO BE DONE IN COORDINATION WITH MINNESOTA POWER.
- CONDUIT TO BE INSTALLED ON POLE WILL NOT ENCOMPASS AREA GREATER THAN 90 DEGREES. CONSULT WITH MINNESOTA POWER REPRESENTATIVE FOR LOCATION ON POLE.

Connecting to Ground-mounted Facilities—Single Phase

When connecting private underground service cable to Minnesota Power's ground-mounted facilities, the customer will provide, own and maintain the cable.

Service is less than or equal to 320 amps

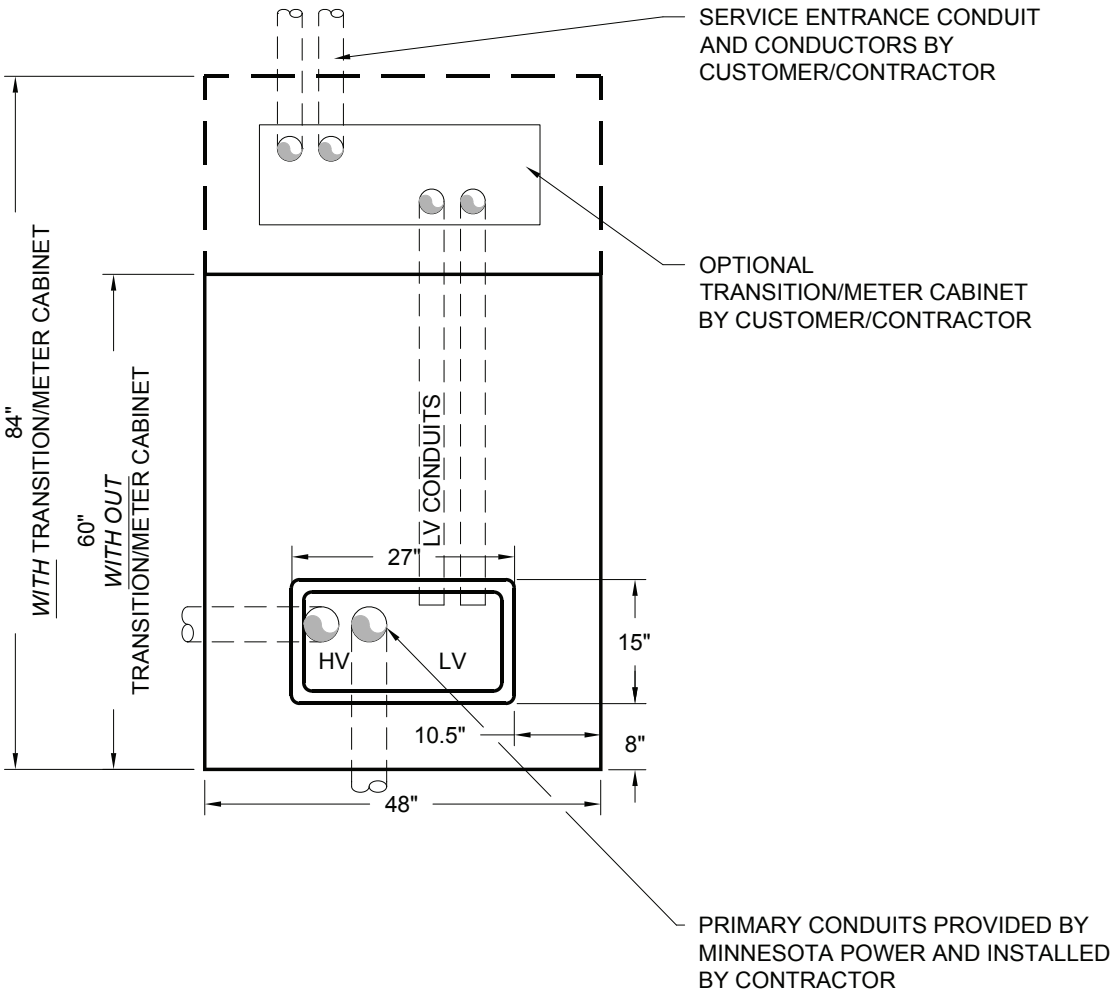
The customer shall dig and install private underground service cable to within one foot of any side of the secondary pedestals or the front right side of a pad-mounted transformer, leaving a minimum of six feet of cable above ground for connection purposes. Minnesota Power personnel will dig the remaining trench length, dig under the transformer or secondary pedestal and connect the cable to the transformer or secondary pedestal.

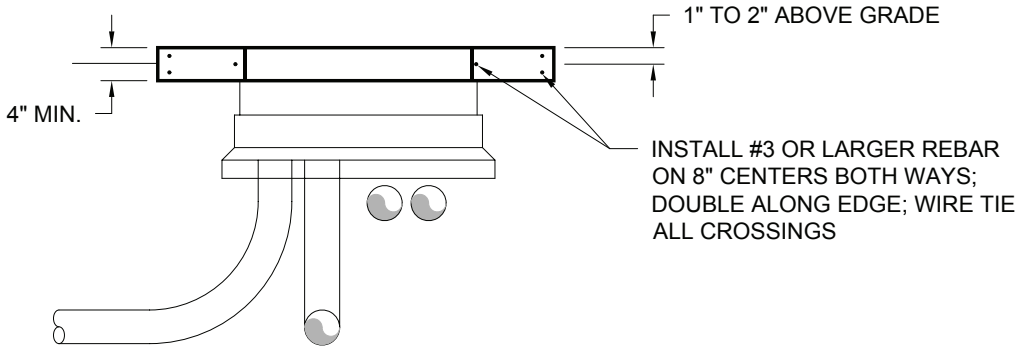
Service is greater than 320 amps

The customer shall dig and install private underground service cable to within one foot of any side of the secondary pedestals or the front right side (the front is the side where the lock is located) of a pad-mounted transformer, leaving a minimum of six feet of cable above ground for connection purposes. Minnesota Power personnel will de-energize the transformer or secondary pedestal. The customer will dig the remaining trench length, dig under the transformer or secondary pedestal, and in conjunction with Minnesota Power personnel, connect the cable to the de-energized transformer or secondary pedestal.

Padmount Transformer Concrete Base Specification 100-250kVA Single Phase

(xfmr_Pad_9232_10-31-11)





For clearance requirements for Padmount Transformers, please see pages 48-52.

Meter Requirements

Bypass Metering Requirements

If Lot Line Metering is Not Used

In order to minimize power interruptions during meter replacement or calibration, and to ensure safety of Minnesota Power employees, all commercial, customer-owned, self-contained meter sockets must have a jaw-clamping lever-type bypass.

Horn-type bypasses are not acceptable bypasses.

Exceptions to a bypass requirement are:

- Temporary service intended for one year or less
- Service for illuminating signs or billboards
- Service for street lighting (does not include traffic control lights or semaphores)

Self Contained Metering

200-Amp Single-Phase 3-Wire—5 terminal, 200-amp, jaw-clamping, lever-operated bypass, weatherproof, ringless, 5th jaw at nine o'clock position, hub opening for overhead, closure plate or plain top for underground.

320-Amp Single-Phase 3-Wire—4 terminal, 320-amp, jaw-clamping, lever-operated bypass, weatherproof, ringless, hub opening for overhead, closure plate or plain top for underground. Anti-inversion clips in the upper right jaw are not allowed.

200 Amp 3 Wire Network or 3 Phase 3 Wire—5 terminal, 200-amp jaw-clamping lever-operated bypass, weatherproof, ringless, 5th jaw at 9 o'clock position, hub opening for overhead, closure plate or plain top for underground.

200 Amp 2 Position Single Phase 3 Wire—4 terminal, weatherproof, 200-amp jaw-clamping lever-operated bypass per position, ringless, hub opening for overhead, closure plate or plain top for underground.

320 Amp Single Phase 3 Wire—4 Terminal, 320 amp jaw clamping lever operated bypass, weatherproof, ringless, hub opening for overhead, closure plate or plain top for underground. Anti-inversion clips in the upper right jaw are not allowed.

Milbank	similar to	U1797-X (underground) U1079-R (overhead) U2448-x (overhead/underground) U2872-XT-5T9 (overhead/underground) U4801-XL-5T9 (overhead/underground)
Cutler Hammer	similar to	UT-H4300-CH (overhead/underground) UT-H4330-CH (offset)

200 Amp 3 Wire Network or 3 Phase4 3 Wire—5 terminal, 200 amp jaw clamping lever operated bypass, Weatherproof, Ringless, 5th jaw at 9:00 o'clock position, Hub opening for overhead, Closure plate or plain top for underground.

Milbank	similar to	U4551-RL
Cutler Hammer	similar to	UGT-H4203-CH (overhead) UBG-H4213-CH (overhead/underground)

Approved Meter Sockets—List of Manufacturers

Landis and Gyr, Milbank, T&B, Anchor, Durham, Siemens, Square D, Cutler Hammer and Midwest Electric are examples of UL approved metering equipment providers.

In limited instances, a Cold Sequence Metering Assembly for 480V service installations rated 200 Amp or less is available with Minnesota Power approval. Consult your Customer Service Representative.

Meter Location

Outdoor metering is required for all installations unless prior approval is given.

- For outdoor installations the center line of all meters shall be between four and six feet from the finished grade.
- When a meter room is being used, such as for an apartment building, locate meters in the basement or another suitable and readily accessible place as near as possible to the point where the service enters the building. Each meter position shall be marked on the outside of the socket or by the breaker (if available) with the address of the unit served.
- A minimum three feet of unobstructed working space, as measured from the surface on which it is mounted, should be maintained in front of the meter, and a minimum of 12 inches of unobstructed space should be maintained on all sides of the meter cover. Ample space shall be provided for all meters, metering equipment and other apparatus so that they can be safely read, inspected and tested.

Please call Minnesota Power's Meter Department at 1-800-228-4966 or 218-355-2516 for questions regarding sockets.

**Note: Your local or state electrical code may have different requirements.*

Instrument Rated Metering

Minnesota Power Supplied Equipment:

- CTs and VTs (current transformers and voltage transformers)
- Meter bases (CT installation)
- Supply and install control wire in customer's conduit
- Meter shack, if necessary

**Note: Single phase services exceeding 320A or in excess of 240V require instrument-rated metering. All services exceeding 200A three phase require instrument-rated metering. For any services exceeding 480V, either single or three phase, consult a Minnesota Power representative for guidance.*

Temporary Metering Requirements

Minnesota Power will allow non bypass for temporary service installation of less than one year duration.

Three Phase Installation

Installation Of Minnesota Power Electric Service

Your site will be reviewed to determine the nearest power source and meter location options for the installation of your new electric service. Unless customer voltage needs cannot be met, Minnesota Power distribution facilities will be located as far as 300 feet from your electrical service panel. Minnesota Power facilities will be located in a truck-accessible location to ensure ongoing access for maintenance. Design and installation of Minnesota Power facilities will be determined by Minnesota Power personnel and will be constructed according to Minnesota Power Engineering Standards and the National Electrical Safety Code (NESC).

Overhead Installation—Three Phase

Overhead installation is the overhead electrical power line from Minnesota Power's utility pole to your meter location. The customer is responsible for sizing, purchasing, installing and maintaining the meter enclosure, riser pipe, weatherhead and Point of Attachment (POA).

The POA shall be located at a point readily accessible to Minnesota Power's distribution mains or service drop. The POA shall be of sufficient mechanical strength to support the wind- and ice-loaded weight of the service drop and shall be located as determined in conjunction with your Minnesota Power representative.

When multiple conduit risers or service masts are installed to support a single electric entrance, it is the customer's responsibility to provide the connector that ties the customer's conductors (wires) together and allows for a single point of connection to Minnesota Power's conductors.

Underground Installation—Three Phase

The customer is responsible for sizing, purchasing, installing and maintaining the underground conductor (cable) that connects to Minnesota Power's metering equipment or secondary connection point.

Connecting to Pole-mounted Facilities—Three Phase

When connecting customer-owned underground service cable to Minnesota Power's pole-mounted transformer(s) or secondary wires, the customer will provide, own and maintain the cable, conduit for the riser, steel straps and weatherhead that will be mounted on the pole. Mounting height for weatherhead shall be one foot below Minnesota Power's neutral position. The conductor shall be brought to the base of the pole and assembled as follows:

Service is less than or equal to 200 amps

Minnesota Power personnel will secure the conductor to the pole and connect the customer-owned service wires as appropriate.

Service is greater than 200 amps

Minnesota Power personnel in conjunction with the customer shall jointly install the riser(s) and secure it (them) to the pole. Minnesota Power personnel will connect* the customer-owned service wires as appropriate.

**When multiple risers or service masts are installed to support a single electric entrance, it is the customer's responsibility to provide the connector that ties the customer's conductors together and allows for a single point of connection for the Minnesota Power conductors.*

Connecting to Ground-mounted Facilities—Three Phase

When connecting private underground service cable to Minnesota Power's ground-mounted facilities, the customer will provide, own and maintain the cable.

Service is less than or equal to 320 amps

The customer shall dig and install private underground service cable to within one foot of any side of the secondary pedestals or the front right side of a pad-mounted transformer, leaving a minimum of six feet of cable above ground for connection purposes. Minnesota Power personnel will dig the remaining trench length, dig under the transformer or secondary pedestal and connect the cable to the transformer or secondary pedestal.

Service is greater than 320 amps

The customer shall dig and install private underground service cable to within one foot of any side of the secondary pedestals or the front right side (the front is the side where the lock is located) of a pad-mounted transformer, leaving a minimum of six feet of cable above ground for connection purposes. Minnesota Power personnel will de-energize the transformer or secondary pedestal. The customer will dig the remaining trench length, dig under the transformer or secondary pedestal, and in conjunction with Minnesota Power personnel, connect the cable to the de-energized transformer or secondary pedestal.

Short Circuit Currents

Voltage and Phase	kVA	% Impedance	Short Circuit AMPs
120/240 – 1PH	25	1.6	10,300
	50	1.7	19,050
	75	1.6	29,540
	100	1.6	38,540
	167	1.8	54,900
120/208 – 3PH	150	2.0	20,850
	300	2.0	41,700
	500	2.0	69,400
277/480 – 3PH	150	1.2	15,083
	300	1.2	30,083
	500	1.3	46,230

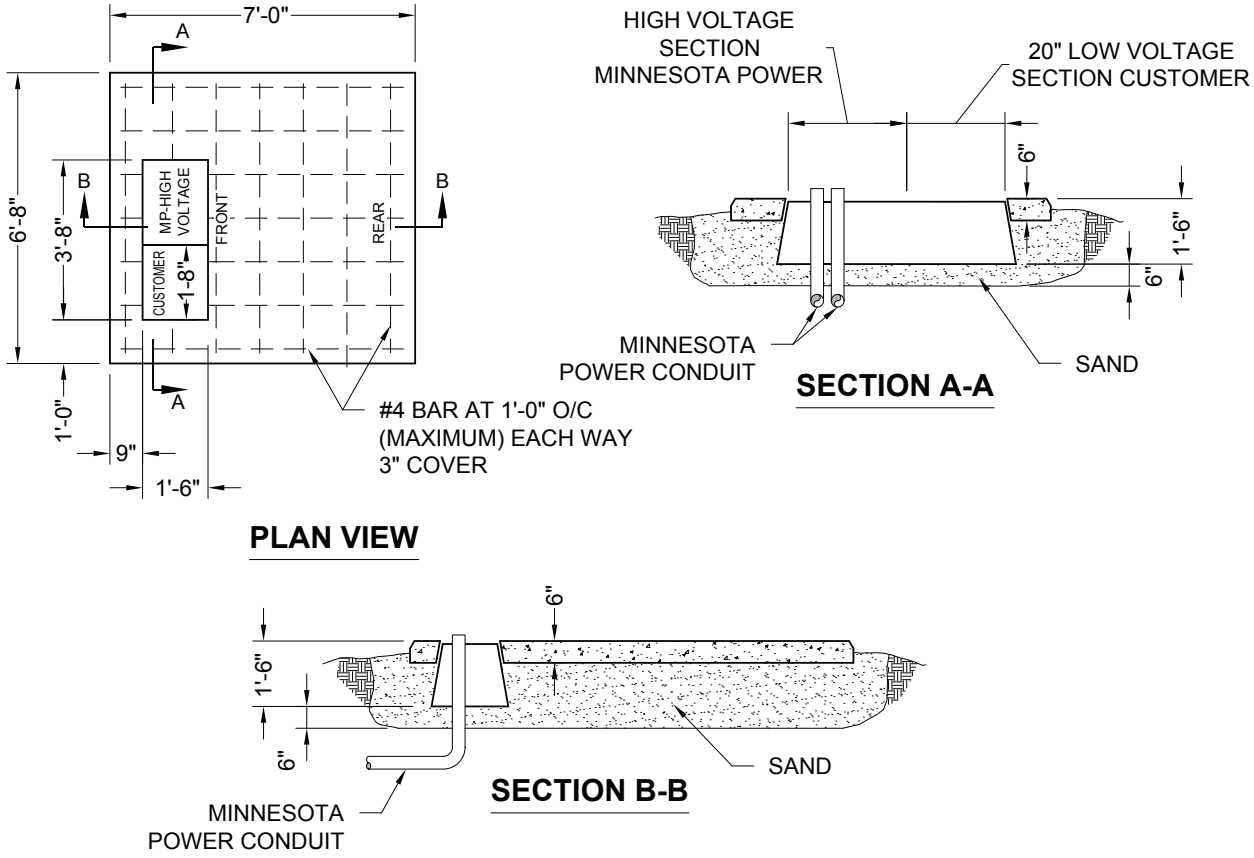
For transformer greater than 500 kVA consult with your Minnesota Power Representative.
Short circuit currents based on “infinite” primary.

Transformer Pad Specifications—Three Phase

The customer will be required to furnish a transformer pad for all three phase installations requiring a padmount transformer and for all single phase installations requiring a 100 kVa or larger padmount transformer.

Transformer Pad—Three Phase 30-300 kVA

(xfmrPad30-300_10-31-11)



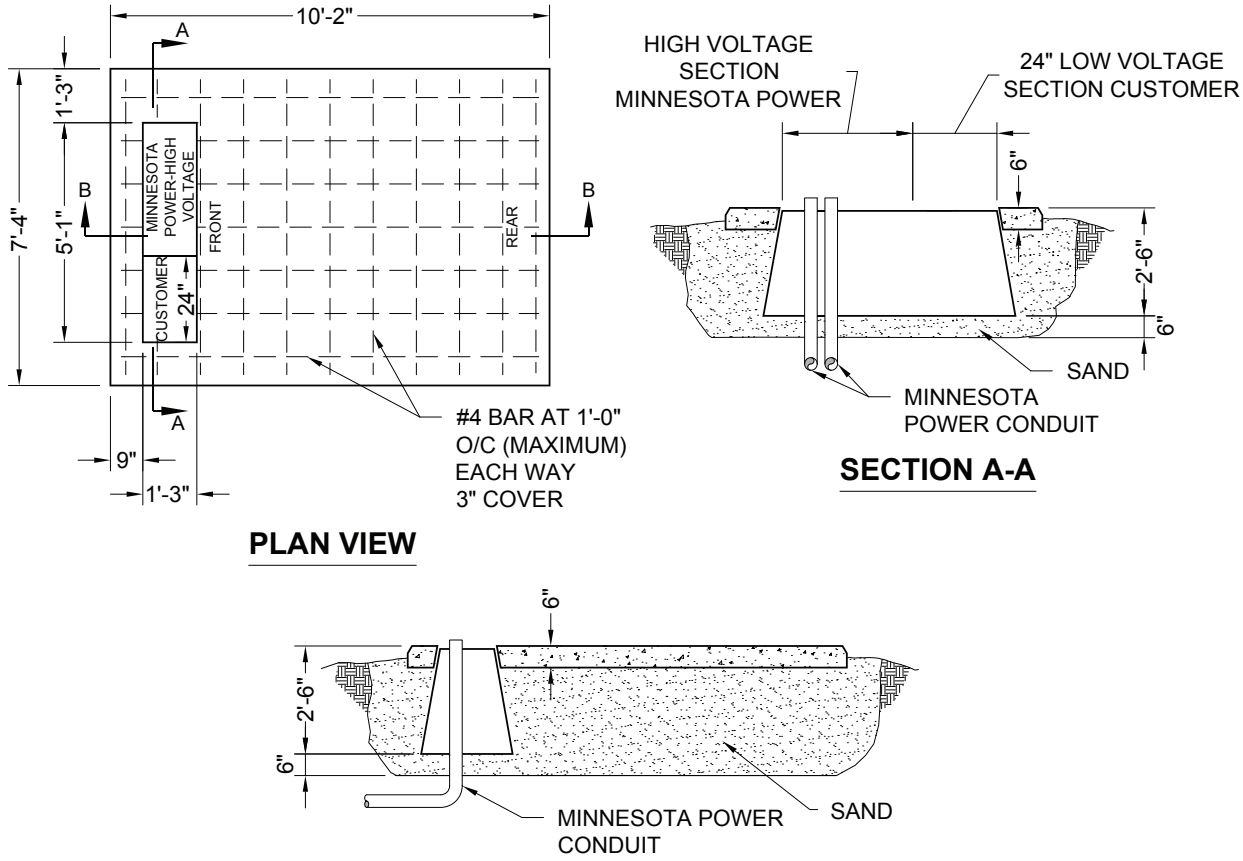
NOTES:

1. AIR ENTRAINED CONCRETE - 4000 PSI AFTER 28 DAYS, MAX. AGGREGATE 3/4"
2. STEEL FLOAT FINISH.
3. REINFORCEMENT: TYPE A-305 NEW BILLET STOCK A.S.T.M. GRADE 60.
4. ALL REINFORCING TO BE #4 BAR 12” O.C. EACH WAY. WIRE TIE ALL CROSSINGS.
5. IF THE ANTICIPATED FORECAST TEMPERATURE IS 35 DEGREES F OR LESS, THE PAD WILL BE INSULATED WITH EITHER BLANKETS OR POLY AND STRAW FOR A MIN. OF 3 DAYS.
6. APPLY MEMBRANE CURING COMPOUND.
7. EDGE TROWEL WITH CHAMFERED OUTSIDE EDGES.
8. A SAFE OPERATING CLEARANCE OF A MIN. 10' (UNOBSTRUCTED) IS REQUIRED IN FRONT OF THE TRANSFORMER DOOR. THE DOOR(S) CAN FACE ANY DIRECTION EXCEPT TOWARD THE BUILDING UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER. DECISIONS SHALL BE BASED UPON SOUND ENGINEERING PRACTICES AND SITE SPECIFIC CONDITIONS.
9. IF NECESSARY, ELECTRICAL CONTRACTOR MAY REMOVE TOP LIP OF FIBERGLASS GROUND SLEEVE IN THE LOW VOLTAGE SECTION.
10. GROUND SLEEVE AND CONDUIT MAY BE PICKED UP AT MINNESOTA POWER SERVICE CENTER MONDAY - FRIDAY WITH PRIOR ARRANGEMENTS.

- THIS SPECIFICATION IS FOR TRANSFORMERS RATED 25kV AND BELOW LINE TO LINE PRIMARY. FOR 34.5kV CONSULT SYSTEM ENGINEERING

Transformer Pad—Three Phase 500-2500 kVA

(xfmrPad500-2500_10-31-11)



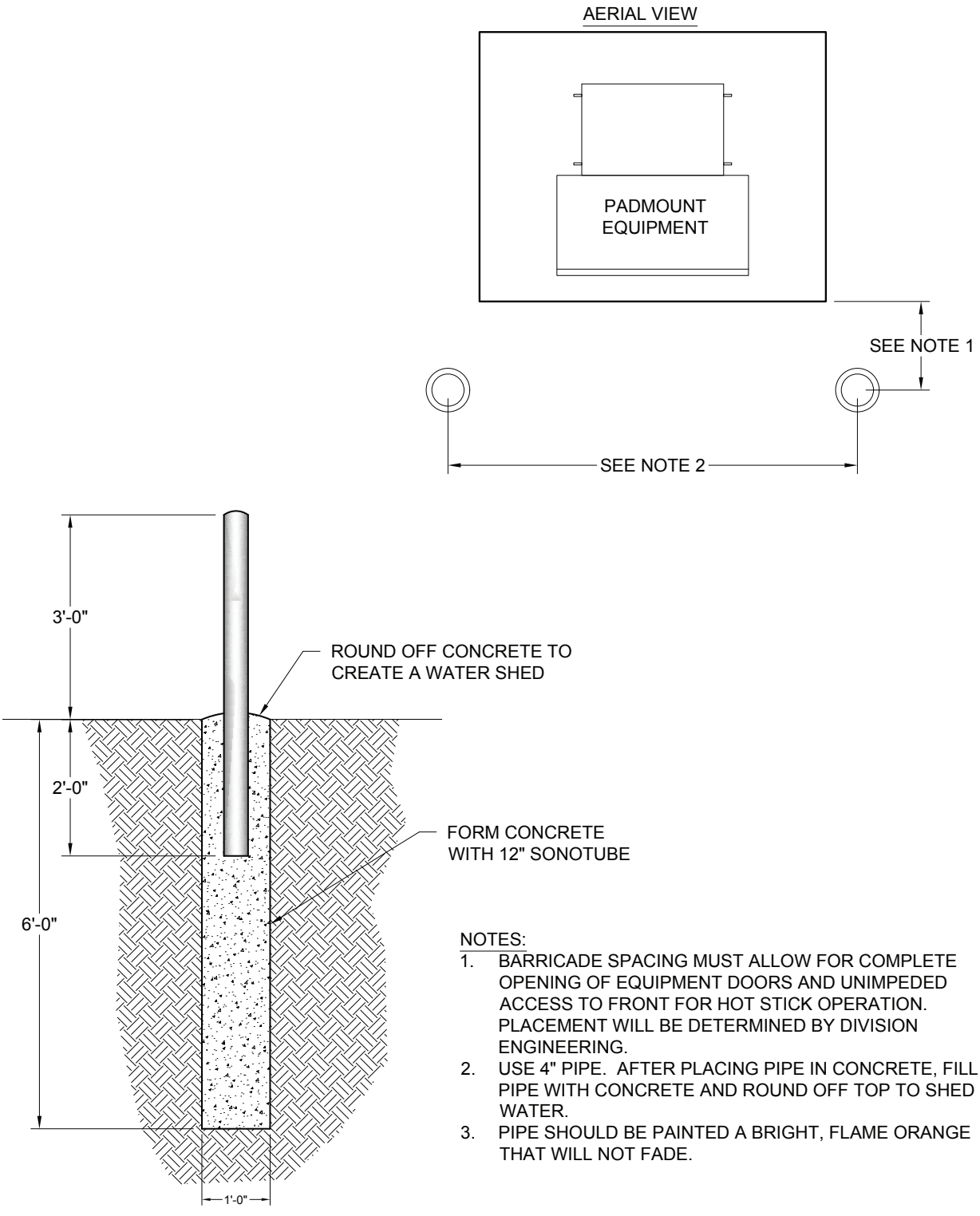
NOTES:

1. AIR ENTRAINED CONCRETE - 4000 PSI AFTER 28 DAYS, MAX. AGGREGATE 3/4".
2. STEEL FLOAT FINISH.
3. REINFORCEMENT: TYPE A-305 NEW BILLET STOCK A.S.T.M. GRADE 60.
4. ALL REINFORCING TO BE #4 BAR 12" O.C. EACH WAY. WIRE TIE ALL CROSSINGS.
5. IF THE ANTICIPATED FORECAST TEMPERATURE IS 35 DEGREES F OR LESS, THE PAD WILL BE INSULATED WITH EITHER BLANKETS OR POLY AND STRAW FOR A MIN. OF 3 DAYS.
6. APPLY MEMBRANE CURING COMPOUND.
7. EDGE TROWEL WITH CHAMFERED OUTSIDE EDGES.
8. A SAFE OPERATING CLEARANCE OF A MIN. 10' (UNOBSTRUCTED) IS REQUIRED IN FRONT OF THE TRANSFORMER DOOR. THE DOOR(S) CAN FACE ANY DIRECTION EXCEPT TOWARD THE BUILDING UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER. DECISIONS SHALL BE BASED UPON SOUND ENGINEERING PRACTICES AND SITE SPECIFIC CONDITIONS.
9. IF NECESSARY, ELECTRICAL CONTRACTOR MAY REMOVE TOP LIP OF FIBERGLASS GROUND SLEEVE IN THE LOW VOLTAGE SECTION.
10. GROUND SLEEVE AND CONDUIT MAY BE PICKED UP AT MINNESOTA POWER SERVICE CENTER MONDAY - FRIDAY WITH PRIOR ARRANGEMENTS.

- THIS SPECIFICATION IS FOR TRANSFORMERS RATED 25kV AND BELOW LINE TO LINE PRIMARY. FOR 34.5kV CONSULT SYSTEM ENGINEERING

Protective Barrier for Padmount Equipment

(bollard_10-31-11)



NOTES:

1. BARRICADE SPACING MUST ALLOW FOR COMPLETE OPENING OF EQUIPMENT DOORS AND UNIMPEDED ACCESS TO FRONT FOR HOT STICK OPERATION. PLACEMENT WILL BE DETERMINED BY DIVISION ENGINEERING.
2. USE 4" PIPE. AFTER PLACING PIPE IN CONCRETE, FILL PIPE WITH CONCRETE AND ROUND OFF TOP TO SHED WATER.
3. PIPE SHOULD BE PAINTED A BRIGHT, FLAME ORANGE THAT WILL NOT FADE.

Meter Location

Outdoor metering is required for all installations unless prior approval is given.

- For outdoor installations the center line of all meters shall be between four and six feet from the finished grade.
- When a meter room is being used, such as for an apartment building, locate meters in the basement or another suitable and readily accessible place as near as possible to the point where the service enters the building. Each meter position shall be marked on the outside of the socket or by the breaker (if available) with the address of the unit served.
- A minimum three feet of unobstructed working space, as measured from the surface on which it is mounted, should be maintained in front of the meter, and a minimum of 12 inches of unobstructed space should be maintained on all sides of the meter cover. Ample space shall be provided for all meters, metering equipment and other apparatus so that they can be safely read, inspected and tested.

Please call Minnesota Power's Meter Department at 1-800-228-4966 or 218-355-2014 for questions regarding sockets.

**Note: Your local or state electrical code may have different requirements.*

Instrument Rated Metering

Minnesota Power Supplied Equipment:

- CTs and VTs (current transformers and voltage transformers)
- Meter bases (CT installation)
- Supply and install control wire in customer's conduit
- Meter shack, if necessary

**Note: Single phase services exceeding 320A or in excess of 240V require instrument-rated metering. All services exceeding 200A three phase require instrument-rated metering. For any services exceeding 480V, either single or three phase, consult a Minnesota Power representative for guidance.*

Temporary Metering Requirements

Minnesota Power will allow non bypass for temporary service installation of less than one year duration.

Instrument Rated Metering—Three Phase and Single Phase

Metering at currents greater than 320 Amperes or voltages greater than 240 Volts shall be accomplished using current and voltage instrument transformers (CT's and VT's) installed in approved, listed busbar type metering cabinets. The cabinet shall be provided by the Customer.

480 Volt loads less than 200 Amperes may be metered using a Cold Sequence Self Contained Meter Socket. This enclosure includes a 200 Ampere circuit breaker ahead of the meter socket. This allows the meter to be installed and removed from a de-energized circuit. These units are to be used for smaller loads which would present metering inaccuracies such as DOT Highway lighting and agricultural pumping. A single Meter Socket will be provided and installed by Minnesota Power on the transformer riser pole or on a post adjacent to the pad mounted transformer. The circuit breaker and meter enclosures will be sealed with a Utility ring lock. The Customer must agree to accept power outages for meter service and testing. If multiple or remotely located meter installations meeting this load criteria are required, Customer shall provide a lockable circuit breaker or a fused or solid blade disconnect switch ahead of the meter socket(s) which meets the prior approval of the Minnesota Power Meter Engineer.

Installation of outdoor current and voltage instrument transformers without a metering cabinet is discouraged and will be allowed only with prior approval of the Minnesota Power Meter Engineer.

Two types of metering cabinets are commonly used:

- A "Transition Cabinet" is required for a service which requires more than four conductors per phase. The Transition Cabinet may be mounted on the transformer slab or adjacent to the transformer pole. For a Transition Cabinet, the point of service is defined as the line side terminals in the Transition Cabinet. The conductors between the transformer and the Transition Cabinet are supplied by the Utility. A Transition Cabinet may include breaks in the busbars for installation of current transformers. If Current Transformers are installed, the meter socket is to be mounted on the outside of the Transition Cabinet.
- A "Current Transformer Cabinet" (CT Cabinet) may be mounted on a building wall, posts, or other structure near the transformer or riser pole. For a CT Cabinet, the point of service is defined as the load side terminals of the Utility transformer. The conductors between the transformer and the CT Cabinet are supplied by the Customer/Contractor. A CT Cabinet must include busbars with openings for the Current Transformers. Meter sockets are normally installed on the outside of the CT Cabinet or must be mounted outside of the building if the metering cabinet or switchgear is installed inside the building.

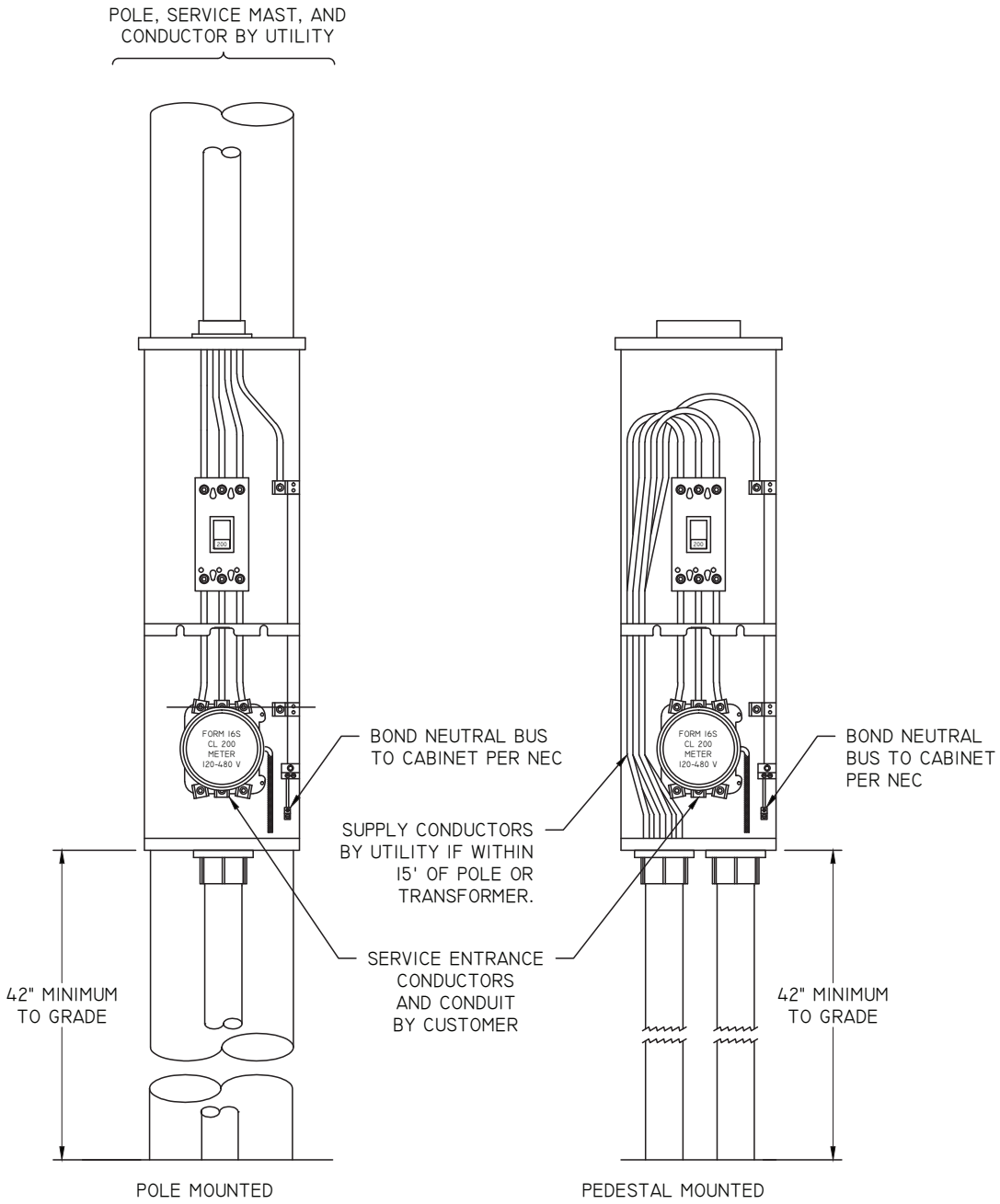
It is preferred that the supply conductors attach to the top section of busbars in cabinets having vertical busbars and to the left section of busbars having horizontal busbars. However, exceptions may be made to this requirement to meet field conditions with the prior approval of the Minnesota Power Meter Engineer. The grounded conductor busbar shall be bonded to the metering cabinet and sized according to the National Electric Code.

For 480Y/277 Volt metering applications in CT cabinets, the Voltage Transformers (VT's) shall be installed in a metering cabinet which provides dedicated space for them or in separate enclosure attached directly to the metering cabinet. In no case, will the VT's be allowed to be installed loose in the metering cabinet, attached to the top of the CT cabinet, or in a location which will impede the installation or servicing of the load conductors.

Transition/Metering Cabinet Installation Requirements

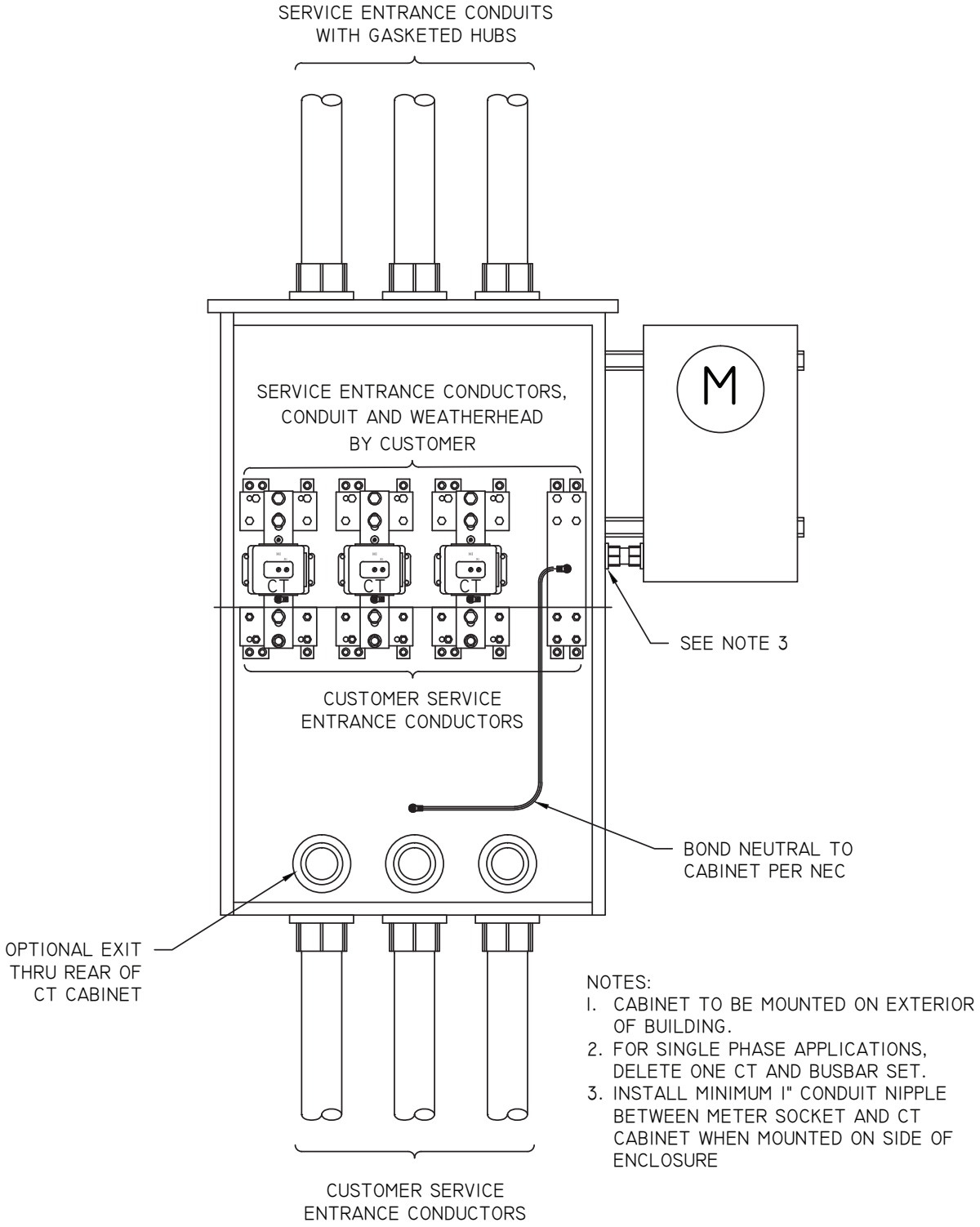
1. Services having more than four conductors per phase will require a Transition Cabinet. This cabinet is to allow for a clean connection point between the customer and the Utility. It also assists in the correct sizing of the transformers for the present load and allows ease of transformer change out as well as permitting the customer to add additional circuits at a later date should the load increase.
2. The Transition Cabinet should be located on the same slab as the padmount transformer or near but no closer than 10 feet to the riser pole for an overhead transformer bank. The service conductors supplied by Minnesota Power should not be longer than 15 feet (not including the riser portion for an overhead transformer bank). The Transition Cabinet shall be secured to the concrete with anchor bolts.
3. For Transition Cabinets, the Utility will provide the current and voltage transformers, the meter socket, the ground sleeve for the transformer, the conduit and cable between the pad mounted transformer and the Transition Cabinet, and cable lugs for both ends of the Utility supplied conductors. The Customer/Contractor will install the ground sleeve for the transformer, the conduit between the transformer and Transition Cabinet, and the CT's, VT's, and meter socket. The Utility will install its conductors between the transformer and the Transition Cabinet.
4. For CT Cabinets, the Utility will provide the current and voltage transformers, the meter socket and the ground sleeve for the transformer. The Customer/Contractor will install the ground sleeve for the transformer and the CT's, VT's, and meter socket.
5. The Customer/Contractor will provide and install the cable from the Transition Cabinet or CT Cabinet to the customer premise, as well as the Transition or CT Cabinet, connection lugs for the customer conductors, and reinforced concrete slab for the transformer and Transition Cabinet (if used).
6. Minnesota Power will lock the Transition/Metering Cabinet with a standard Company lock. If the metering cabinet is outside, the meter socket will be located on the outside of the cabinet. If the metering cabinet is inside, the meter socket is to be installed outside the building unless approved in advance by the Company Meter Engineer. The contractor shall install the CT's, VT's, and meter socket. A minimum 1" trade size conduit shall be provided between the metering cabinet and the meter socket. Minnesota Power personnel will connect the metering circuits.

Cold Sequence Meter Socket—Self Contained Three Phase 277/480 Volt and Single Phase 240/480 Volt *(SELF_CONTAIN_480_08_02-29-12)*



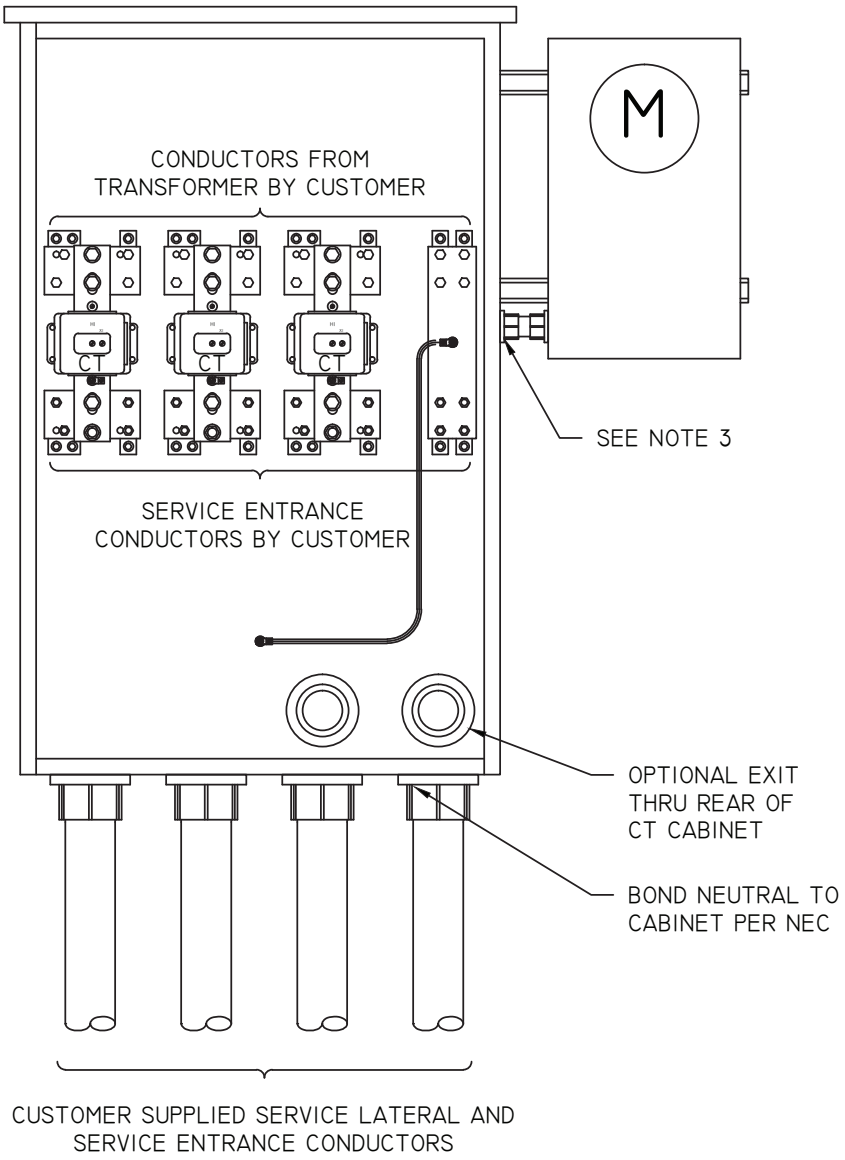
Overhead Service CT Cabinet 120/208 Volt and 120/240 Volt

(CT_OH_01_02-29-12)



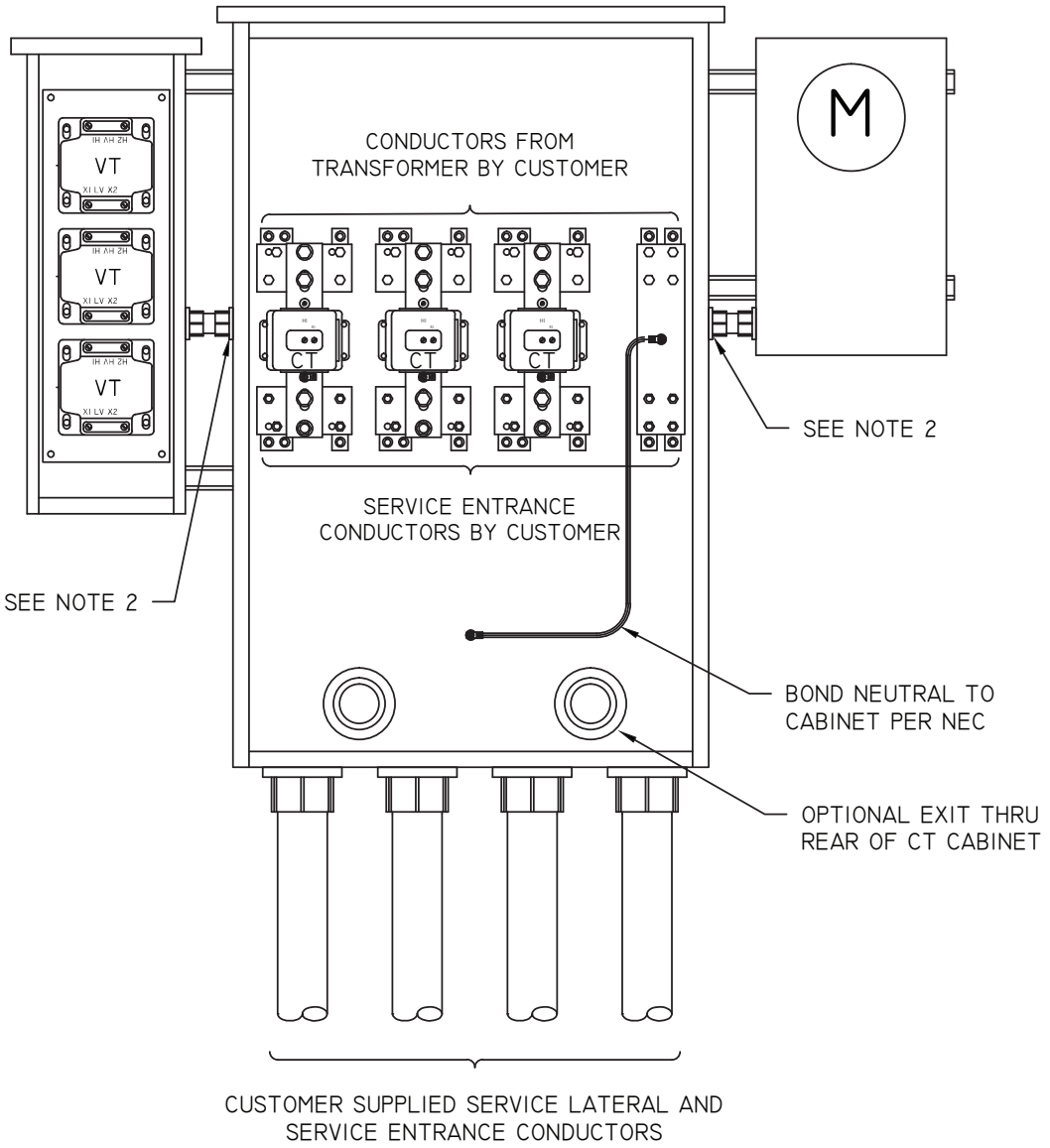
Underground Service CT Cabinet 120/208 Volt and 120/240 Volt

(CT_UG_02_02-29-12)



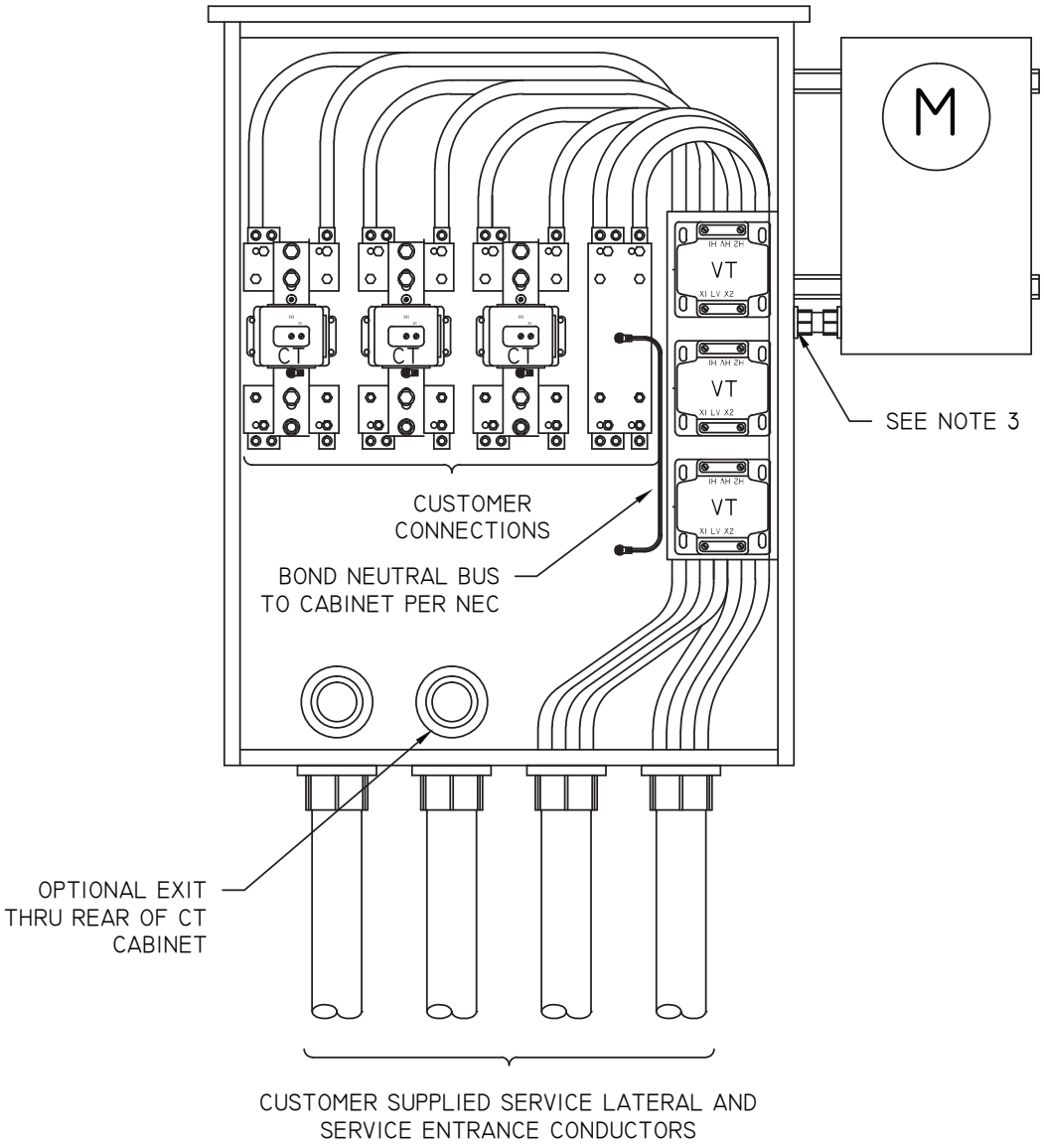
NOTES:
1. CABINET TO BE MOUNTED ON EXTERIOR OF BUILDING.
2. FOR SINGLE PHASE APPLICATIONS, DELETE ONE CT AND BUSBAR SET.
3. INSTALL MINIMUM 1" CONDUIT NIPPLE BETWEEN METER SOCKET AND CT CABINET WHEN MOUNTED ON SIDE OF ENCLOSURE.

Underground Service CT Cabinet with Separate Enclosure for Mounting VT's 277/480 Volt Three Phase *(CT_VT_UG_03_02-29-12)*



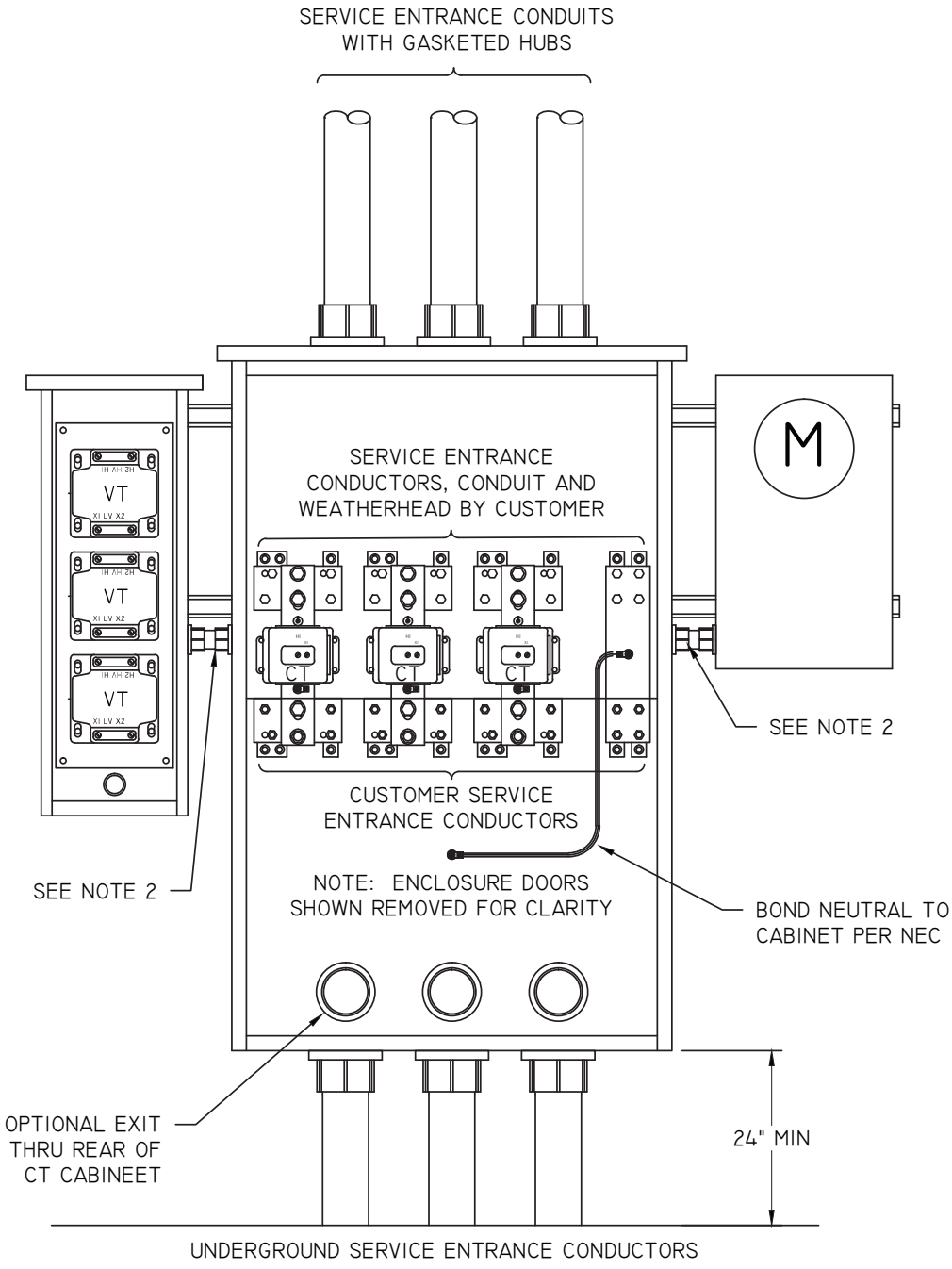
NOTES:
1. CABINET TO BE MOUNTED ON EXTERIOR OF BUILDING.
2. INSTALL MINIMUM 1" CONDUIT NIPPLE BETWEEN METER SOCKET AND CT CABINET ALSO BETWEEN VT CABINET AND CT CABINET WHEN MOUNTED ON SIDE OF ENCLOSURE

Underground Service CT Cabinet with Internal Panel for Mounting VT's 277/480 Volt Three Phase *(CT_VT_UG_04_02-29-12)*



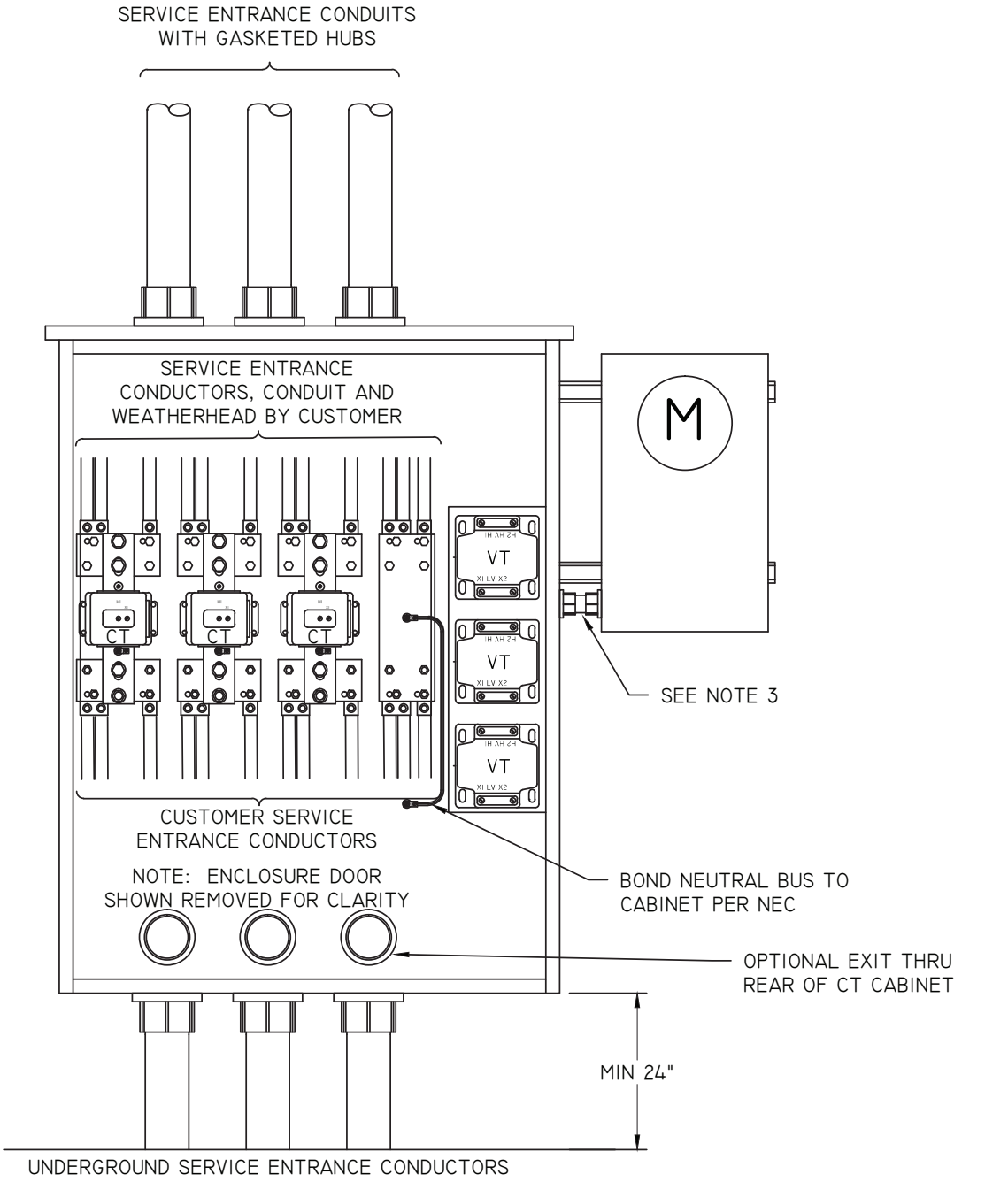
NOTES:
1. DO NOT INSTALL CONDUCTORS IN FRONT OF VTS
2. CABINET TO BE MOUNTED ON EXTERIOR OF BUILDING.
3. INSTALL MINIMUM 1" CONDUIT NIPPLE BETWEEN METER SOCKET AND CT CABINET WHEN MOUNTED ON SIDE OF ENCLOSURE

Overhead Utility Service CT Cabinet with Separate Enclosure for Mounting VT's 277/480 Volt Three Phase *(CT_VT_OH_05_02-29-12)*



NOTES:
1. CABINET TO BE MOUNTED ON EXTERIOR OF BUILDING.
2. INSTALL MINIMUM 1" CONDUIT NIPPLE BETWEEN METER SOCKET AND CT CABINET ALSO BETWEEN VT CABINET AND CT CABINET WHEN MOUNTED ON SIDE OF ENCLOSURE

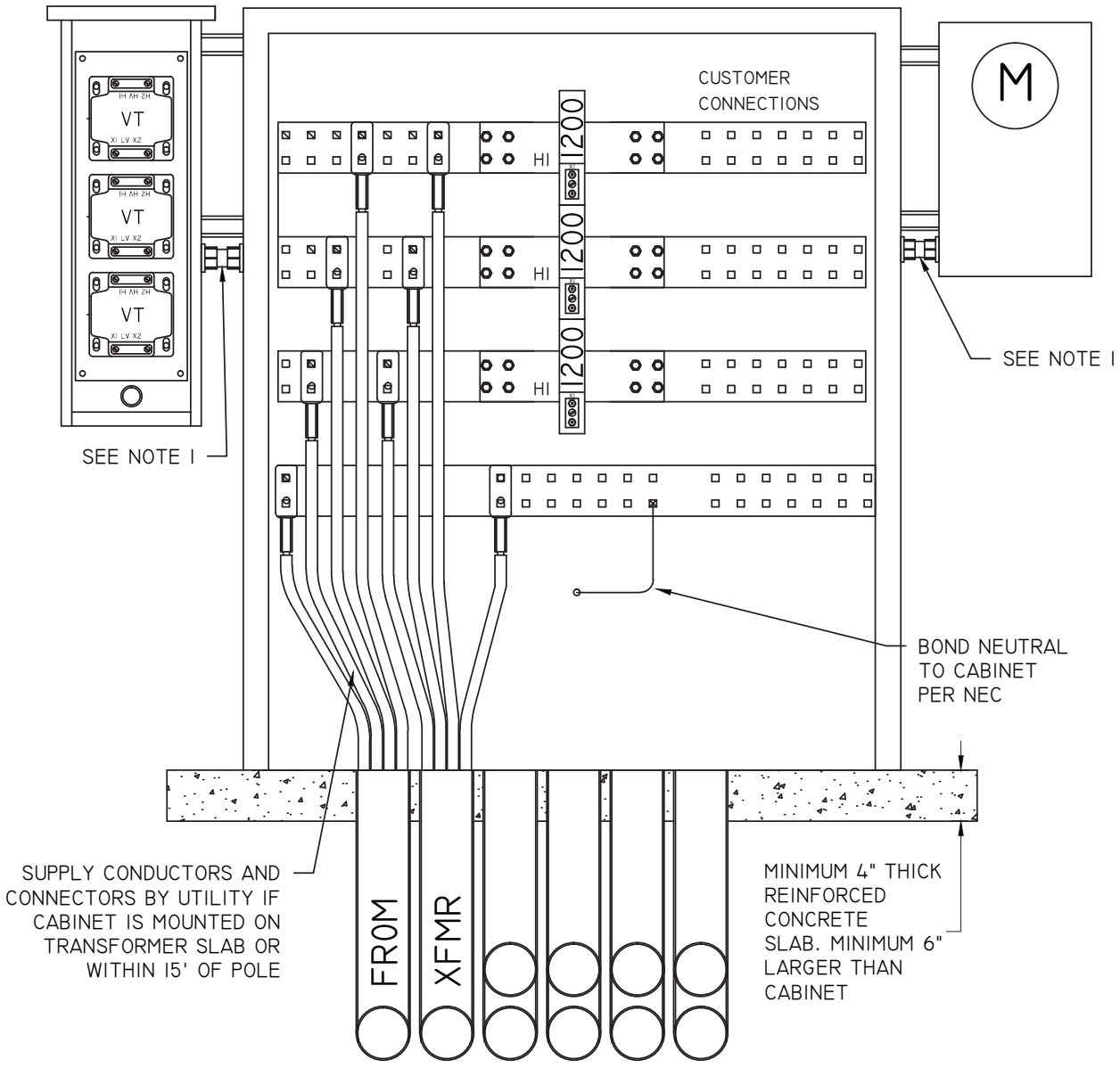
Overhead Utility Service CT Cabinet with Internal Panel for Mounting VT's 277/480 Volt Three Phase *(CT_VT_OH_06_02-29-12)*



NOTES:
1. DO NOT INSTALL CONDUCTORS IN FRONT OF VTS
2. CABINET TO BE MOUNTED ON EXTERIOR OF BUILDING.
3. INSTALL MINIMUM 1" CONDUIT NIPPLE BETWEEN METER SOCKET AND CT CABINET WHEN MOUNTED ON SIDE OF ENCLOSURE

Transition Cabinet 120/240 and 120/208 and 277/480 Volt

(TRANS_CABINET_07_02-29-12)



NOTES:
1. INSTALL MINIMUM 1" CONDUIT NIPPLE WITH WATER TIGHT BUSHING
2. FOR SINGLE PHASE APPLICATIONS, DELETE ONE CT AND BUSBAR SET.

Padmount Clearance Requirements

Padmount Transformer—Outdoor Location, Near Buildings

(PadXfmr_01_10-31-11)

THE PURPOSE OF THIS SPECIFICATION IS TO SHOW THE PROPER LOCATION OF PADMOUNT TRANSFORMERS NEAR BUILDINGS THAT ARE CONSTRUCTED WITH COMBUSTIBLE AND NON-COMBUSTIBLE WALLS. THE DEFINITIONS OF THE TWO TYPES OF CONSTRUCTION ARE AS FOLLOWS:

COMBUSTIBLE WALL: ANY WALL NOT MEETING THE NON-COMBUSTIBLE WALL STANDARD AS STATED BELOW.

NON-COMBUSTIBLE WALL: CONSTRUCTED OF STEEL OR FIRE RETARDANT WOOD FRAME COVERED BY 5/8" SHEET ROCK ON THE INTERIOR WITH A BRICK, STONE OR METAL SIDING EXTERIOR, OR WITH 5/8" SHEET ROCK COVERED BY STUCCO FACING. THIS IS CLASSED AS TYPE 1 OR 2 BUILDING ACCORDING TO THE MINNESOTA STATE BUILDING CODE.

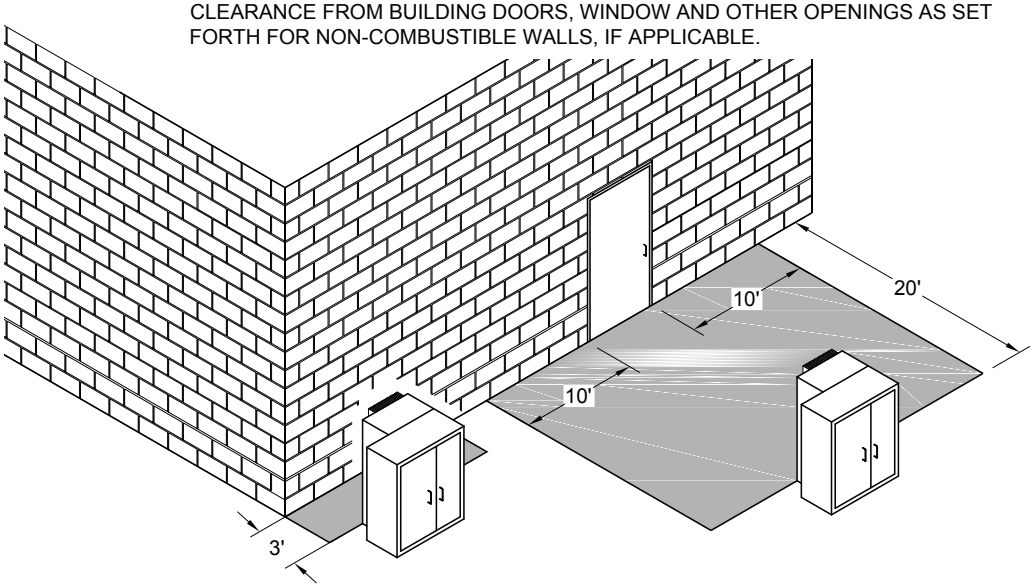
THE FOLLOWING ILLUSTRATES WHERE PADMOUNT OIL-INSULATED TRANSFORMERS MAY BE LOCATED NEXT TO COMBUSTIBLE AND NON-COMBUSTIBLE WALLS.

NON-COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS MAY BE LOCATED NEXT TO NON-COMBUSTIBLE WALLS IF THE FOLLOWING CLEARANCES ARE MAINTAINED FROM WINDOWS, DOORS OR OTHER OPENINGS 20' OUTWARD AND 10' ON EITHER SIDE. IN ALL CASES THERE SHOULD BE A MINIMUM OF 3' OF CLEARANCE FROM BUILDING WALL TO TRANSFORMER CASE OR COOLING FINS FOR MAINTENANCE PURPOSES.
- LOCAL REQUIREMENTS MAY VARY CHECK WITH LOCAL BUILDING OFFICIAL

COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS IN SIZES UP TO AND INCLUDING 100 kVA SHALL BE LOCATED ACCORDING TO THE PROVISIONS AS SET FORTH IN THE SUBSECTION FOR NON-COMBUSTIBLE WALLS.
- PADMOUNT OIL-INSULATED TRANSFORMERS IN SIZES ABOVE 100kVA SHALL BE LOCATED A MINIMUM OF 10' FROM THE BUILDING WALL OR ADHERE TO THE CLEARANCE FROM BUILDING DOORS, WINDOW AND OTHER OPENINGS AS SET FORTH FOR NON-COMBUSTIBLE WALLS, IF APPLICABLE.



Padmount Transformer—Outdoor Location, Near Building Air Intake

(PadXfmr_02_10-31)

THE PURPOSE OF THIS SPECIFICATION IS TO SHOW THE PROPER LOCATION OF PADMOUNT TRANSFORMERS NEAR BUILDINGS THAT ARE CONSTRUCTED WITH COMBUSTIBLE AND NON-COMBUSTIBLE WALLS. THE DEFINITIONS OF THE TWO TYPES OF CONSTRUCTION ARE AS FOLLOWS:

COMBUSTIBLE WALL: ANY WALL NOT MEETING THE NON-COMBUSTIBLE WALL STANDARD AS STATED BELOW.

NON-COMBUSTIBLE WALL: CONSTRUCTED OF STEEL OR FIRE RETARDANT WOOD FRAME COVERED BY 5/8" SHEET ROCK ON THE INTERIOR WITH A BRICK, STONE OR METAL SIDING EXTERIOR. OR WITH 5/8" SHEET ROCK COVERED BY STUCCO FACING. THIS IS CLASSED AS TYPE 1 OR 2 BUILDING ACCORDING TO THE MINNESOTA STATE BUILDING CODE.

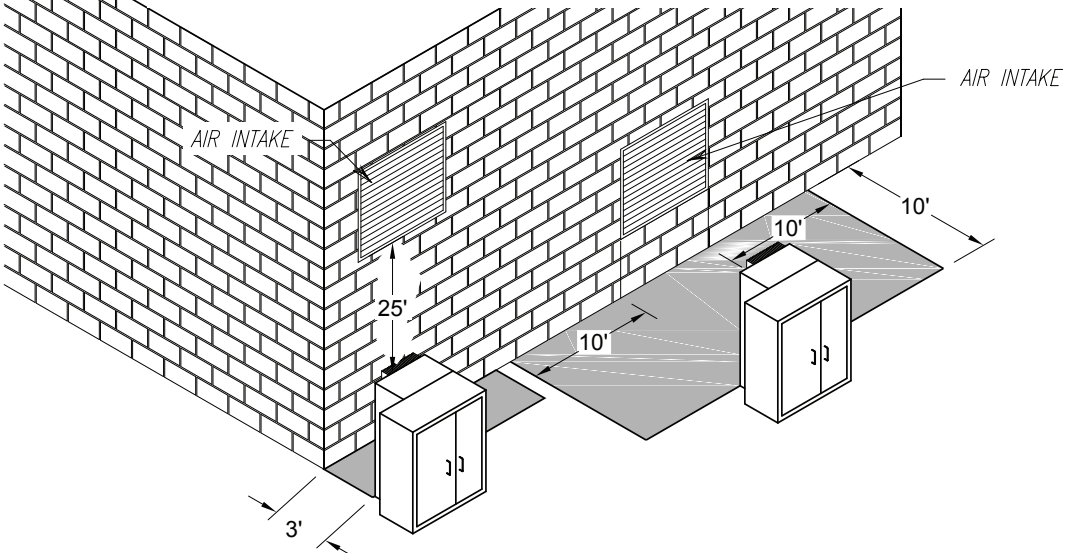
THE FOLLOWING ILLUSTRATES WHERE PADMOUNT OIL-INSULATED TRANSFORMERS MAY BE LOCATED NEXT TO COMBUSTIBLE AND NON-COMBUSTIBLE WALLS.

NON-COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS SHALL NOT BE LOCATED WITHIN A ZONE THAT EXTENDS 10' OUTWARD AND 10' ON EITHER SIDE OF AN AIR INTAKE OPENING. SUCH TRANSFORMERS MAY BE LOCATED WITHIN SAID ZONE BENEATH AN AIR INTAKE OPENING PROVIDED THERE IS NOT LESS THAN 25' DIAGONAL SEPARATION BETWEEN THE TRANSFORMER AND SAID OPENING. IN ALL CASES THERE SHOULD BE A MINIMUM OF 3' OF CLEARANCE FROM BUILDING WALL TO TRANSFORMER CASE OR COOLING FINS FOR MAINTENANCE PURPOSES.
- LOCAL REQUIREMENTS MAY VARY CHECK WITH LOCAL BUILDING OFFICIAL

COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS IN SIZES UP TO AND INCLUDING 100 kVA SHALL BE LOCATED ACCORDING TO THE PROVISIONS AS SET FORTH IN THE SUBSECTION FOR NON-COMBUSTIBLE WALLS.
- PADMOUNT OIL-INSULATED TRANSFORMERS IN SIZES ABOVE 100kVA SHALL BE LOCATED A MINIMUM OF 10' FROM THE BUILDING WALL OR ADHERE TO THE CLEARANCE FROM BUILDING DOORS, WINDOW AND OTHER OPENINGS AS SET FORTH FOR NON-COMBUSTIBLE WALLS, IF APPLICABLE.



Padmount Transformer—Outdoor Location, Near Building Window/Opening

(PadXfmr_03_10-31-11)

THE PURPOSE OF THIS SPECIFICATION IS TO SHOW THE PROPER LOCATION OF PADMOUNT TRANSFORMERS NEAR BUILDINGS THAT ARE CONSTRUCTED WITH COMBUSTIBLE AND NON-COMBUSTIBLE WALLS. THE DEFINITIONS OF THE TWO TYPES OF CONSTRUCTION ARE AS FOLLOWS:

COMBUSTIBLE WALL: ANY WALL NOT MEETING THE NON-COMBUSTIBLE WALL STANDARD AS STATED BELOW.

NON-COMBUSTIBLE WALL: CONSTRUCTED OF STEEL OR FIRE RETARDANT WOOD FRAME COVERED BY 5/8" SHEET ROCK ON THE INTERIOR WITH A BRICK, STONE OR METAL SIDING EXTERIOR, OR WITH 5/8" SHEET ROCK COVERED BY STUCCO FACING. THIS IS CLASSED AS TYPE 1 OR 2 BUILDING ACCORDING TO THE MINNESOTA STATE BUILDING CODE.

THE FOLLOWING ILLUSTRATES WHERE PADMOUNT OIL-INSULATED TRANSFORMERS MAY BE LOCATED NEXT TO COMBUSTIBLE AND NON-COMBUSTIBLE WALLS.

NON-COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS SHALL NOT BE LOCATED WITHIN A ZONE EXTENDING 10' OUTWARD AND 3' ON EITHER SIDE OF THE BUILDING WINDOW OR OPENING OTHER THAN AN AIR INTAKE. SUCH TRANSFORMERS MAY BE LOCATED WITHIN SAID ZONE BENEATH A WINDOW PROVIDED THERE IS NOT LESS THAN 5' DIAGONAL SEPARATION BETWEEN THE TRANSFORMER AND SAID OPENING. IN ALL CASES THERE SHOULD BE A MINIMUM OF 3' OF CLEARANCE FROM BUILDING WALL TO TRANSFORMER CASE OR COOLING FINS FOR MAINTENANCE PURPOSES.
- LOCAL REQUIREMENTS MAY VARY CHECK WITH LOCAL BUILDING OFFICIAL

COMBUSTIBLE WALLS:

- PADMOUNT OIL-INSULATED TRANSFORMERS IN SIZES UP TO AND INCLUDING 100 kVA SHALL BE LOCATED ACCORDING TO THE PROVISIONS AS SET FORTH IN THE SUBSECTION FOR NON-COMBUSTIBLE WALLS.
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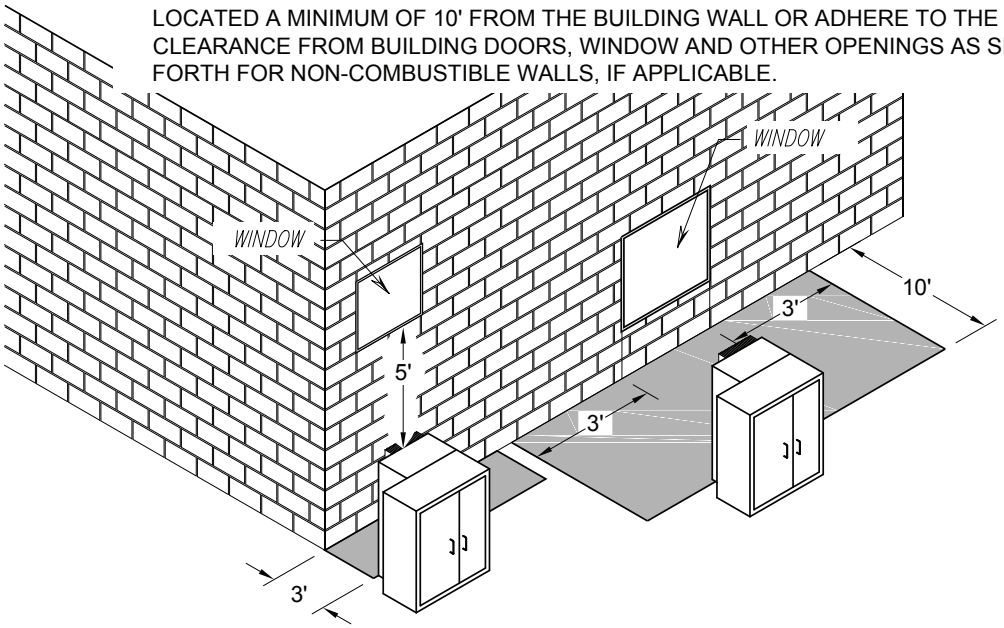


Padmount Transformer—Outdoor Location, Fire Escapes

(PadXfmr_04_10-31-11)

THE PURPOSE OF THIS SPECIFICATION IS TO SHOW THE PROPER LOCATION OF PADMOUNT TRANSFORMERS NEAR BUILDINGS THAT ARE CONSTRUCTED WITH COMBUSTIBLE AND NON-COMBUSTIBLE WALLS. THE DEFINITIONS OF THE TWO TYPES OF CONSTRUCTION ARE AS FOLLOWS:

COMBUSTIBLE WALL: ANY WALL NOT MEETING THE NON-COMBUSTIBLE WALL STANDARD AS STATED BELOW.

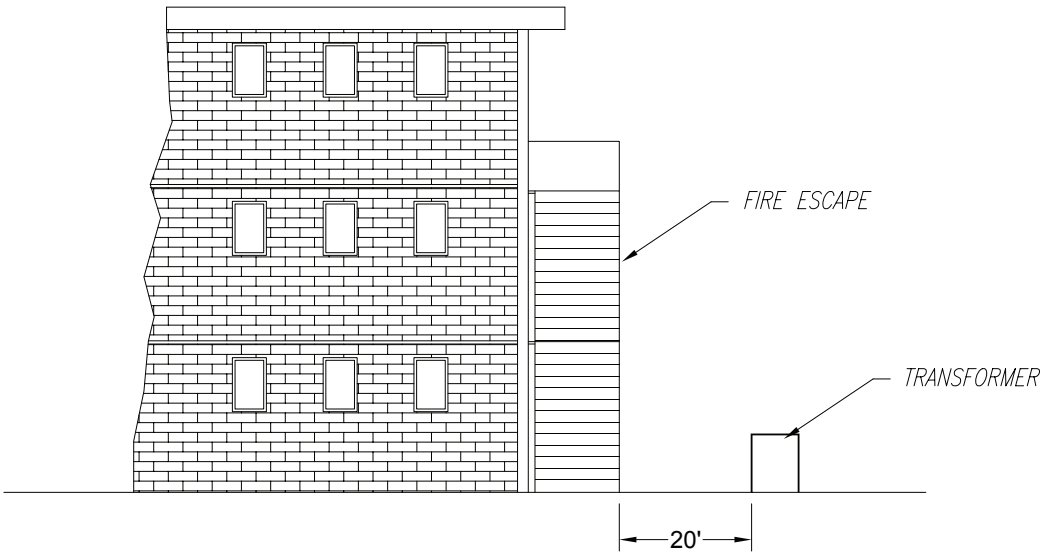
NON-COMBUSTIBLE WALL: CONSTRUCTED OF STEEL OR FIRE RETARDANT WOOD FRAME COVERED BY 5/8" SHEET ROCK ON THE INTERIOR WITH A BRICK, STONE OR METAL SIDING EXTERIOR, OR WITH 5/8" SHEET ROCK COVERED BY STUCCO FACING. THIS IS CLASSED AS TYPE 1 OR 2 BUILDING ACCORDING TO THE MINNESOTA STATE BUILDING CODE.

THE FOLLOWING ILLUSTRATION TYPIFY WHERE PADMOUNT OIL-INSULATED TRANSFORMERS MAY BE LOCATED NEXT TO COMBUSTIBLE AND NON-COMBUSTIBLE WALLS.

FIRE ESCAPES:

PADMOUNT OIL-INSULATED TRANSFORMERS SHALL BE LOCATED SUCH THAT A MINIMUM CLEARANCE OF 20' IS MAINTAINED FROM FIRE ESCAPE AT ALL TIMES.

LOCAL REQUIREMENTS MAY VARY PLEASE CHECK WITH LOCAL BUILDING OFFICIAL.



Padmount Transformer—Outdoor, Near Building Window/Opening Using Barriers

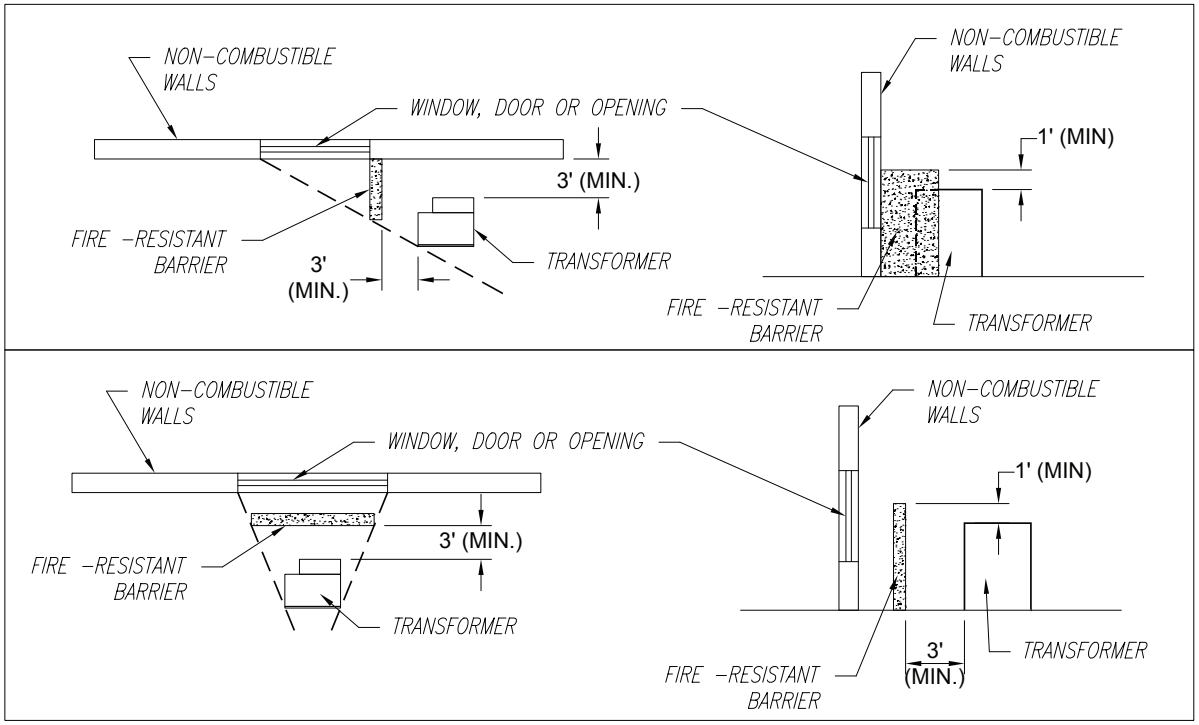
(PadXfmr_05_10-31-11)

BARRIERS

A FIRE-RESISTANT BARRIER MAY BE CONSTRUCTED IN LIEU OF THE SEPARATION. THE FOLLOWING METHODS ARE ACCEPTABLE:

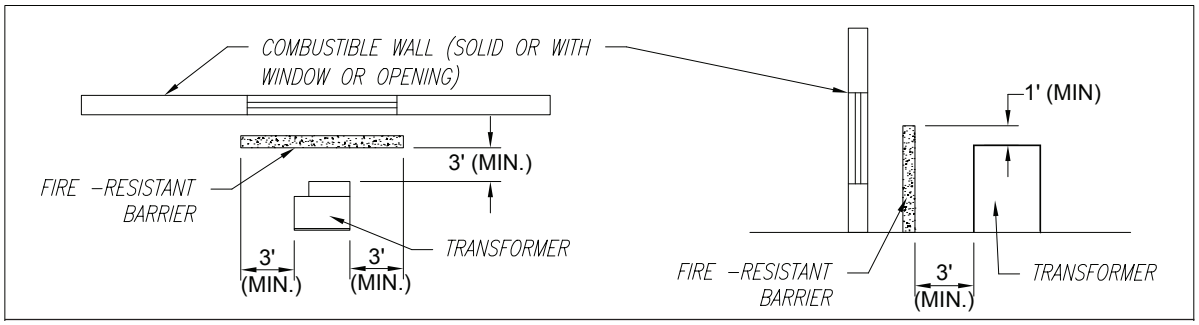
1. NON-COMBUSTIBLE WALLS

THE BARRIER SHALL EXTEND TO A LINE PROJECTED FROM THE CORNER OF THE PADMOUNT TO THE FURTHEST CORNER OF THE WINDOW, DOOR OR OPENING IN QUESTION. THE HEIGHT OF THE BARRIER SHALL BE 1' ABOVE THE TOP OF THE PADMOUNT TRANSFORMER. SEE FIGURE 5 BELOW.



2. COMBUSTIBLE WALLS

THE BARRIER SHALL EXTEND 3' BEYOND EACH SIDE OF THE PADMOUNT TRANSFORMER. THE HEIGHT OF THE BARRIER SHALL BE 1' ABOVE THE TOP OF THE TRANSFORMER.



Extension Rules & Electric Service Regulations

I. GENERAL

The following rules shall govern the extension of Company's electric transmission/distribution lines and service connections in all areas served by Company to all classes of retail Customers requiring Company's standard single or three phase electric transmission/distribution service.

The standard type of extension shall be the most feasible and economical as determined by the Company and shall be constructed in accordance with Company's Engineering Standards. When conditions require extensions from or connections to lines of voltages other than the standard voltage or where line construction other than Company's standard construction is required including alternate feeders, Company reserves the right to make adjustments to these rules for such non-standard extensions.

Except when meter pedestals for underground service have been installed, all facilities installed by Company on either side of the point of delivery and not expressly sold and conveyed to Customers by written agreement shall at all times remain the sole property of Company, irregardless of any Contributions in Aid of Construction paid by Customers. When meter pedestals have been installed by Company, Customer shall be responsible for installing and will remain the sole property owner of all facilities on Customer's side of the meter. In case of cancellation of Customer's service agreement for any cause, Company shall have the right to remove all facilities installed for serving Customer.

Service will be supplied in accordance with Company's schedules for the respective classes of service in the respective rate areas, Company's Electric Service Regulations and the provisions of these Extension Rules.

II. EXTENSION COST

The "Extension Cost" is the estimated cost of extending lines and the addition or relocation of facilities to serve new Customers or new loads. This shall be the total cost of extending the line, including all branch or lateral lines, but excluding the cost of transformer, meter and any system betterments. The Extension Cost shall include the customer's choice of either an overhead or underground service drop and projections of special condition costs anticipated.

III. CONTRIBUTIONS

The "Contribution in Aid of Construction," hereafter referred to as Contribution, is the additional amount required to support the Company's Extension Cost. Where a line extension other than Company's standard type extension is required, including alternate feeders, a Contribution shall be required to support any additional cost of such non-standard extension.

Any customer may pay all or part of a Contribution required of another Customer with such other Customer's authorization, and subject to acceptance by Company.

IV. BASIS FOR MAKING EXTENSIONS FOR PERMANENT SERVICE WHERE EXTENSION COSTS ARE $30,000 OR LESS

If the Extension Cost does not exceed $850 and Company's standard type construction is used in making the extension, Customer shall not be required to make payment to Company for the Extension Cost. If the Extension Cost exceeds $850, and is for single phase service, customer must pay Company in advance a Contribution for the Extension Cost in excess of $850. If the Extension cost exceeds $850 and is for non-single phase service, Customer has the following options:

1. Pay Company in advance a Contribution for the Extension Cost in excess of $850, or
2. No advance contribution for extension costs will be required, if the customer enters into a five year Electric Service Agreement where the Company's costs relating to the entire extension are equal to or less than three times the Customers guaranteed annual revenues, or

3. If the Customer enters into a five year Electric Service Agreement where the Company's costs relating to the entire extension are greater than three times the Customer's guaranteed annual revenues, the Customer will be required to pay the Company in advance a Contribution for the balance of the Extension Cost not supported by guaranteed annual revenues.

The annual revenues used in the Electric Service Agreement shall be estimated by Company and determined under the existing rate schedule for providing service to the Customer.

Developers of Residential Housing Sites

A Developer of residential housing sites requiring electric service must make a Contribution equal to the Extension Cost, but excluding the cost of service drops. As customers are connected Developer is entitled to receive a refund for each customer connected of $850 less the estimated cost of the service drop for that customer. However, in no event will the total refund exceed the Contribution. After Developer has received the maximum allowable refund or after the initial five years, whichever occurs first, customers requesting service to additional lots for which the extension was made shall make appropriate arrangements directly with Company in order to satisfy additional extension costs related to the respective service connections.

V. BASIS FOR MAKING EXTENSIONS FOR TEMPORARY SERVICE

"Temporary Service," for purposes of these Extension Rules, is service to a Customer whose use of that service, in the Company's judgment, may be of less than five years duration, or is service to a Customer who is unwilling to enter into an Electric Service Agreement having a minimum term of five years.

Customers expected to take service for less than one year duration shall be required to take such service in accordance with Company's Temporary Service Rider to the applicable General Service Schedules.

Customers expected to take Temporary Service for more than one year but less than five years will be served under the Company's standard rate schedules. Such customers with requirements of 500 kW or more shall enter into a contract for a minimum term of one year.

Prior to installation Temporary Service Customers shall pay a Contribution equal to the estimated cost of installation and removal, less salvage, of the facilities required to render Temporary Service. Where the actual cost is different from the estimated costs upon which the advance payment was based, as determined upon termination of Temporary Service, Company will refund any excess payment made by Customer or render a bill for any additional amounts due.

A connection to a permanent service for power used during construction is not considered to be Temporary Service under these rules.

VI. REAPPORTIONMENT AND REFUNDS

When the Extension Cost is $30,000 or less and additional Customer(s) are connected to a line extension during the initial five year period of any Customer on the extension, the Extension Cost(s) of all previously connected Customer(s) on the extension will be reapportioned among all Customers served from the combined line extension, including the Customer(s) who are being added to the extension. The reapportionment shall be calculated such that each individual customer on the line extension shall be responsible for:

1. The cost of that portion of the extension which services only that individual Customer; plus

2. The cost of that portion of the line extension which that individual Customer shares with other Customers on the line extension divided by the total number of Customers who share such portion of the line extension.

After reapportionment it will be determined whether the previously connected Customer(s) are entitled to a refund and/or reduction of Guaranteed Annual Revenue. If a refund is due, the amount to be refunded shall be the difference between the previous and reapportioned Extension Costs, provided that such refunds will not:

1. Exceed the actual Contribution paid by the respective Customer.

2. Be made to any Customer after the expiration of the initial five year period of that Customer.

3. Be made after Customer terminates service.

When a Customer who has paid a Contribution terminates service within the initial five year period and another Customer immediately commences taking service at the same premises, such Customer may transfer his right to future refunds, if any, to the new Customer, provided an agreement covering such transfer is executed by the Customers and accepted by the Company at the time the new Customer applies for service. If the Customer terminating service had entered into an Electric Service Agreement, such transfer of rights will be acceptable to the Company when the new Customer has entered into an Electric Service Agreement guaranteeing annual revenues equal to the amount specified in the current agreement.

Following the initial five year period of the most recently connected Customer(s) on the extension, any line extension necessary to serve additional Customers will be considered as a separate extension not affecting Customers connected previously.

Following the expiration of Customer's five year Electric Service Agreement, the annual revenue guarantee will be discontinued for purposes of supporting the line extension and Customer will continue to be served under the provisions of the applicable rate schedule.

1. Refund to the Customer all or a portion of the Contribution but not to exceed an amount equal to the difference between the extension cost supported by the average annual revenue for the first two years and the extension cost supported by the minimum annual revenue the Customer elected to guarantee, and increase the minimum annual guarantee for the remaining years of the agreement to correspond with the new contribution, if any; or

2. Collect an additional contribution from the Customer not to exceed an amount equal to the difference between the extension cost supported by the average revenue for the first two years and the extension cost supported by the minimum annual revenue the Customer elected to guarantee, and decrease the minimum annual guarantee for the remaining years of the agreement to correspond with the new contribution; or

3. Continue the minimum guaranteed annual revenues set forth in the existing Electric Service Agreement.

In no event will the increased minimum annual guarantee in 1 above be greater than the amount necessary to satisfy the Extension Cost. If there is a substantial change in Customer's annual revenues as compared to the guaranteed annual revenues, the Electric Service Agreement and Contribution, if applicable, may be re-examined and changed at the end of any year of the Electric Service Agreement.

VII. SPECIAL CONDITIONS

Construction of an extension will commence when the following conditions have been met.

1. Agreements, when required, shall have been executed by each Customer and accepted by Company specifying initial contract period, guaranteed annual revenue, and any Contribution.

2. Each Customer has paid to Company his share of any Contribution.

3. Satisfactory right-of-way necessary for the construction, operation and maintenance of the extension (including any tree trimming rights) both for the purpose of providing access to the extension on Customers' premises and for continuing the extension to other Customers, has been furnished without expense to the Company.

4. Each Customer has made satisfactory credit arrangements with the Company. In the case of tenants, the Company may require owner to guarantee payment.

5. The extension cost will include excess installation costs incurred by the Company because of special conditions that impede the installation of distribution facilities. Such special conditions include, but are not limited to ground frost, surface or subsurface impediments and submarine installations. Surface or subsurface impediments may include, but are not limited to: rock, bedrock, sub-surface structures and wetlands.

VIII. BASIS FOR MAKING DISTRIBUTION EXTENSIONS FOR PERMANENT SERVICE WHERE EXTENSION COSTS EXCEED $30,000

The above rules shall be applicable except where specifically stated otherwise and except that the Extension Cost will be the actual cost determined upon completion of the extension. The amount of Extension Costs relating to the extension which will be recovered by the Company through application of its rate schedule will be determined on an individual customer basis. Electric Service Agreements will be required and will be for sufficient duration and at sufficient revenue levels to support extension and other costs required to provide service.

If the Extension Cost exceeds the Extension Cost Credit as determined by the Company, the Customer(s) shall pay the Company a Contribution equal to the amount of the Extension Cost that exceeds the Extension Cost Credit. Where more than one Customer is served from the extension, the Contribution will be apportioned in the ratio of each Customer's Contract Demand to total Contract Demand for all Customers initially served from the extension. If there are circumstances unique to an extension in which application of the above rules would not be appropriate or would not properly recover costs, the Company will make necessary adjustments in the application of the rules such that adequate revenues are provided to fund Extension Costs through a combination of Extension Cost Credits and/or Contributions. Similarly, any refund which may be due, as a result of increased Customer Contract Demand during the initial ten year period, or as a result of additional Customers being served subsequently but during the initial ten year period, will be determined by the Company based upon all relevant dates such that revenue recovery is adequate to fund the Extension Costs through a combination of Extension Cost Credits and/or Contributions.

IX. BASIS FOR MAKING TRANSMISSION EXTENSIONS FOR PERMANENT SERVICE

"Transmission" service for purposes of these Extension Rules, is service to a Customer taken at 115 kV or higher. Customer connections involving loads served at transmission voltage will be considered on an individual customer basis. Electric Service Agreements will be required and will be of sufficient duration and at sufficient revenue levels to support extension and other costs required to provide service.

Minnesota Power
Construction Guide
Commercial Edition
Electric Service Regulations

PURPOSE AND CONTENTS

These Service Regulations govern the supplying and taking of electric service. The regulations are designed to provide each Customer the greatest practicable latitude in the use of service consistent with reliable, economical and safe service to all Customers.

These Service Regulations, together with Extension Rules and Rate Schedules, are on file in the Company's various offices, and copies are obtainable by any Customer upon request by telephone, by mail, or www.mnpower.com.

SECTION I – DEFINITIONS

The following terms when used in these Service Regulations, in Rate Schedules and in Service Agreements, shall, unless otherwise indicated, have the meanings given below:

1. **Customer**: Any individual(s), partnership, association, firm, public or private corporation or governmental agency having Company's electric service at any specified location.
2. **Company**: Minnesota Power
3. **Electric Service**: The supplying of electric power and energy, or its availability, irrespective of whether any electric power and energy is actually used. Supplying of service by Company consists of the maintaining by it, at the point of delivery, of approximately the agreed voltage and frequency by means of facilities adequate for carrying Customer's contracted load.
4. **Point of Delivery**: The end of Company's service drop, or the point where Company's wires are joined to Customer's service entrance conductors or apparatus, unless otherwise specified in Customer's Service Agreement.
5. **Customer's Installation**: In general, all wiring, appliances and apparatus of any kind or nature on Customer's side of the point of delivery (except Company's meter installation), useful in connection with Customer's ability to take electric service.
6. **Service Drop**: The wires, owned by Company, connecting Company's distribution mains to Customer's service entrance conductors.
7. **Service Entrance Conductors**: The wires provided by the Customer extending from Customer's main line switch or center at which circuits originate, to the terminal of the Company's service drop.
8. **Month**: An interval of approximately thirty days between successive meter reading dates, except when the calendar month is specified.
9. **Service Agreement**: The agreement or contract between Company and Customer pursuant to which service is supplied and taken.
10. **Notice**: Unless otherwise specified, a written notification delivered personally or mailed by one party to the other at such other party's last known address, the period of notice being computed from the date of such personal delivery or mailing.
11. **Meter**: The meter or meters, together with auxiliary devices, if any, constituting the complete installation needed to measure and report the power and energy supplied to any Customer at a single point of delivery.
12. **Customer Extension**: Any branch from, or continuation of, an existing line to the point of delivery to Customer, including increases in capacity of any of Company's existing facilities, or the changing of any line to meet the Customer's requirements, and including all transformers, service drops and meters.

SECTION II – SERVICE AGREEMENTS

13. **Form and Execution of Service Agreements**: Each application for service normally is made on Company's standard form of application, which, when properly executed by Customer and Company, becomes binding and along with the applicable Rate Schedules, Rules and Regulations, is termed a Service Agreement. Any Service Agreement referred to herein is subject to amendment or change by Company. Any such amendment or change to a Service Agreement may be subject to acceptance or approval by any regulatory body having jurisdiction thereof and upon acceptance or approval will automatically apply to any executed Service Agreement.

    If for any reason an application is not signed by the Customer, the giving of service by the Company and the accepting of such service by all Customers receiving service shall impose the same obligation on each as if a Service Agreement had been executed.
14. **Contract Period of Service Agreements**: The contract period shall be as indicated in the applicable Rate Schedule, unless otherwise provided for in the Service Agreement.
15. **Renewal and Termination of Service Agreements**: Renewals shall be as provided for in the Service Agreement. Unless otherwise provided in the Service Agreement or Rate Schedule, Customer may terminate service at any time by notifying Company not less than three days prior to the date termination is desired. Customer will be held responsible for all service supplied to vacated premises until such notice has been received by Company. Notification may be made by writing, by telephone, mail or by visiting the Company's website at www.mnpower.com.

    When the contract period of a Service Agreement is extended, the demand previously established by Customer is considered as having been established under the extended contract period.

    When a new Service Agreement is entered into, the demand previously established by Customer is considered as having been established under the contract period of the new Service Agreement except that, when the contract demand under the new Service Agreement is less than 60% of the highest actual demand established in the previous contract year, the Company will waive the above requirement.

16. **Company's Right to Cancel Service Agreement or to Suspend Service**: Company, in addition to all other legal remedies, may terminate the Service Agreement, or suspend delivery of service, for any default or breach of the Service Agreement by the Customer, but no such termination or suspension will be made by Company without five (5) days written notice, excluding Sundays and legal holidays, to Customer, stating in what particular the Service Agreement has been violated, except in cases of unlawful or unauthorized use of service by Customer, or dangerous leakage or short circuit on Customer's side of the point of delivery, or in case of utilization by Customer of service in such manner as to cause danger to persons or property. Failure of Company at any time to either suspend delivery of service or to terminate the Service Agreement, or to resort to any other legal remedy, or its adoption of either one or the other of such alternatives, shall not affect Company's right to resort to any of such remedies for the same or any future default or breach by Customer.

17. **Successors and Assigns**: Service Agreements inure to the benefit of and are binding upon the respective heirs, legal representatives, successors and assigns of the parties thereto; but no assignment by Customer shall be binding upon Company until accepted in writing by the latter.

SECTION III – SUPPLY AND TAKING OF SERVICE

18. **Supplying of Service**: Service is supplied only under and pursuant to these Service Regulations and the applicable Rate Schedule, Riders, and Regulatory Rules. Service is supplied under a given Rate Schedule only at such points of delivery as are adjacent to facilities of Company adequate and suitable, as to capacity and voltage, for the service desired.

    Service will be subject to disconnection and deposit requirements as provided by rules of the Minnesota Public Utilities Commission and other applicable law, if, at the time of application for service, the Customer is indebted to the Company for service previously supplied at the same or another address.

19. **Disconnection of Service**:

    A. With Notice – Service may be disconnected with notice for any reason under Minn. Rules Part 7820.1000 or as may otherwise be provided in Company's Service Regulations, Service Schedules or Service Agreements.

    B. Without Notice – Service may be disconnected without notice for any reason under Minn. Rules Part 7820.1100 or as may otherwise be provided in Company's Service Regulations, Service Schedules or Service Agreements.

20. **Reconnection of Service**: Company shall reconnect service following disconnection for non-payment only after all past due accounts, deposits and reconnection fees, where applicable, shall have been paid.

    A. The Service Reconnection Fee shall be as follows:

        i. $20.00 between the hours of 8:00 AM and 4:30 PM Monday through Friday.

        ii. $100.00 after 4:30 PM, before 8:00 AM and on Saturdays, Sundays and legal holidays.

    B. Where service has been disconnected under Minn. Rules Part 7820.1100.B., a reconnection fee will not be required.

    C. Following disconnection under Minn. Rules 7820.1100.A., reconnection will occur only after Company has received payment from Customer of the following:

        i. Power and energy not recorded on the meter at the appropriate rate, the amount of which may be estimated by Company based on the best available data.

        ii. All expenses incurred by Company due to any such unauthorized act or acts.

21. **Service Relock Penalty**:

    A. Company shall assess a Service Relock Penalty of $100 where the Company has previously disconnected service and is required to subsequently return to relock or disconnect the service after it was connected by a Customer without Company authorization.

    B. Company shall assess a penalty for all expenses incurred if additional disconnection of service is required at Customer premises.

    C. In the event of any loss or damage to such property of Company or other person caused by or arising out of carelessness, neglect or misuse by Customer or other unauthorized persons, the cost of making good such loss or repairing such damage shall be paid by Customer.

22. **Continuity of Service**: Company will endeavor to provide continuous service but does not guarantee a constant supply of electric energy and shall not be liable to Customer for damages occasioned by interruption, except as provided by law. The Company shall not be liable for any loss of profits, special, or consequential damages resulting from the use of service or any interruption or disturbance of service.

    In the event of power shortage any curtailment among Customers shall be made as nearly as practical pro rata without liability on the part of Company to any Customer affected.

    If any part of service furnished by Company is employed for purpose of pumping water, Company assumes no obligation to maintain an adequate supply for fire protection, or any other purpose, whatsoever, and such use shall not subject Company to any liability to any party for damages to person or property due to failure of water supply resulting from an interruption or deficiency of electric service from whatsoever cause the same may arise.

23. **Suspension of Service for Repairs and Changes**: When necessary to make repairs to or changes in its lines or system, Company may, without incurring any liability therefore, suspend service for such periods as may be necessary, and in such manner as to minimize inconvenience to Customer.

24. **Use of Service**: Service is for Customer's use only. Company permits redistribution and submetering only where allowed by law. The electric service equipment and associated building wiring of buildings shall be arranged by the owner to permit individual metering of the electrical consumption of each building and occupancy unit to comply with Minn. Stat. 504B.161 and any law amendatory thereto. If desired by the owner, the Company will install and maintain necessary individual Company meters to measure consumption and render bills on the applicable Rate Schedules to each Customer and separately occupied building and occupancy unit.

    In no case may Customer, except with the written consent of Company, extend or connect an installation to lines across or under a street, alley, lane, court or avenue or other public or private space in order to obtain service for adjacent property through one meter even though such adjacent property be owned by Customer. Such consent may be given when such adjacent properties are operated as one integral unit under the same name and for carrying on parts of the same business. In case of unauthorized remetering, sale or extension of service to another person, Company, after five (5) days written notice excluding Sundays and legal holidays, may discontinue the supplying of service to Customer until such unauthorized act is discontinued and full payment is made for all service supplied or used, billed on proper classification and Rate Schedule, and reimbursement in full made to Company for all extra expenses incurred, including expenses for clerical work, testing and inspections.

25. **Customer's Responsibility**: Customer assumes all responsibility on Customer's side of the point of delivery for the service supplied or taken, as well as for the electrical installation, appliances and apparatus used in connection therewith, and shall save Company harmless from and against all claims for injury or damage to persons or property occasioned by or in any way resulting from such service or the use thereof on Customer's side of the point of delivery.

26. **Right-of-Way**: CCustomer shall, without compensation, make or procure satisfactory conveyance to Company of right-of-way for Company's lines necessary and incidental to the furnishing of service to Customer and for continuing or extending said lines over, under, across or through the property owned or controlled by Customer in a manner deemed appropriate by the Company.

27. **Access to Premises**: Company personnel may enter Customer's premises only as authorized by applicable law and regulations. Failure of Customer to provide Company reasonable access may result in disconnection of service under Minn. Rules Part 7820.1000(E).

28. **Location of Point of Attachment**: Customer's Point of Attachment is to be located at a point readily accessible to Company's distribution mains. Customer shall install and maintain a point of attachment for Company's service drop. Said point of attachment shall be of sufficient mechanical strength to support the wind and ice loaded weight of the service drop and shall be located as determined by the Company.

SECTION IV – CUSTOMER'S INSTALLATION

29. **Nature and Use of Installation**: All of Customer's wires, apparatus and equipment shall be selected with the view to obtaining safety, good efficiency, good voltage regulation and the highest practicable power factor and shall be installed in accordance with standard practices. Customer shall install and maintain, on Customer's side of point of delivery, suitable protective equipment as may be required by the Company for the protection of its service to other customers and may not employ or utilize any equipment, appliance or device so as to affect adversely Company's service to Customer or to others. The Company's failure to require such equipment shall not operate to relieve Customer from the obligation to utilize and comply with standard practices. Company may require auto starters or other suitable starting devices for motors above 5 horsepower. When polyphase service is supplied by Company, Customer shall control the use thereof so that the load at the point of delivery will be maintained in reasonable electrical balance between the phases.

    Installations of neon, fluorescent, mercury vapor lamps or tubes, or other types of gaseous tube lamps, or other devices having low power factor characteristics, should be equipped with corrective apparatus to increase the power factor of each unit or separately controlled group of units to not less than approximately 90% lagging.

30. **Inspection by Company**: Company retains the right, but does not assume the duty, to inspect Customer's installation at any time and will refuse to commence or to continue service whenever it does not consider such installation to be in good operating condition, but Company does not in any event assume any responsibility whatever in connection with such matters.

31. **Changes in Installations**: As Company's service drops, transformers, meters, and other facilities used in supplying service to Customer have a definite limited capacity, Customer shall give notice to Company, and obtain Company's consent, before making any material changes or increases in Customer's installation. Company as promptly as possible after receipt of such notice will give its approval to the proposed change or increase, or will advise Customer upon what conditions service can be supplied for such change or increase. Failure to secure Company's approval shall make Customer liable for any damage to Company's facilities.

SECTION V – COMPANY'S INSTALLATION

32. **Installation and Maintenance**: Except as otherwise provided in these Service Regulations, in Service Agreements or Rate Schedules, Company will install and maintain its lines and equipment on its side of the point of delivery, but shall not be required to install or maintain any lines or equipment, except meters, on Customer's side of the point of delivery. Only Company's agents are authorized to connect Company's service drop to Customer's service entrance conductors and to connect Company's meters.

    (a) Electrical Permit: The Company is prohibited from connecting its service drop to Customer's service entrance conductors until permitted by the governmental authority having jurisdiction.

    (b) Standard Connection: The ordinary method of connection between Company's distribution mains and Customer's service entrance conductors will be by overhead wires. If Customer desires to have connection made in any other manner, special arrangements will be made between Customer and Company by which the connection will be made and maintained at Customer's expense.

    (c) Suitable Space: The Customer shall provide at no cost to Company a suitable room or space for Company's transformers and equipment specifically used in providing service to Customer when such room or space is deemed necessary by Company.

33. **Protection by Customer**: Customer shall protect Company's wiring and apparatus on Customer's premises and shall permit no one except Company's agents or persons authorized by law to inspect or handle same. In the event of any loss or damage to such property of Company or other person caused by or arising out of carelessness, neglect or Form 218 Rev. 10/10 misuse by Customer or other unauthorized persons, the cost of making good such loss or repairing such damage shall be paid by Customer.

    Company shall not be responsible to Customer or any other party because of any damage resulting from such installations which are not readily subject to inspection from the ground and the exterior of the premises, or from the meter location, unless Customer shall have notified Company of a condition which, in the reasonable opinion of the Customer, requires attention and the Company shall have had a reasonable time within which to inspect and, if necessary, repair the same.

34. **Customer Extensions**: The Company, at its own expense, makes extensions where the revenue therefrom is sufficient, in Company's opinion, to justify the necessary expenditure.

    Where the Company cannot be assured that the business offered is of sufficient duration, where unusual expenditures are necessary to supply service because of location, size or character of installation, or where area requirements of regulatory bodies may control, the Customer or Customers shall make arrangements satisfactory to Company dependent upon the particular conditions of each situation.

35. **Alteration of Facilities:** Company will, at its discretion, alter, relocate, convert to underground, or remove Company's facilities as may be requested in writing by Customer. Customer shall pay Company for all costs, except as limited below, associated with such alteration, relocation, conversion to underground, or removal including any new facilities required to provide service after the alteration, relocation, conversion, or removal.

    Customers requesting the alteration, relocation, conversion, or removal shall pay the estimated cost for the change, less salvage, of the facilities required to effect such change prior to Company committing funds for the work. Where the actual cost is different from the estimated cost upon which the advance payment was based, as determined upon completion of the requested alteration, relocation, or removal, Company will refund any excess payment made by Customer or render a bill for any additional amount due. However, where Company's estimated cost is less than $5,000, and actual cost exceeds such estimate, the additional amount due by Customer shall not exceed 15 percent of the estimate, regardless of the amount of actual cost.

SECTION VI – METERING

36. **Installation**: Company shall furnish and install the necessary meter or meters, and Customer shall provide and maintain a location, free of expense and satisfactory to Company, all in accordance with Company's Metering Standards.

37. **Evidence of Consumption**: Unless proven to be inaccurate, the registration of Company's meter shall be accepted and received at all times and places as prima facie evidence of the amount of power and energy taken by Customer.

38. **Tests**: Company tests its meters and maintains their accuracy of registration in accordance with good practice. On request of Customer, Company will make a special test which will be done at the expense of the Company. If the Customer requests another test before the expiration of a twelve-month period, the Customer shall bear the cost of the test if the meter is found to be in error by less than 2%, fast or slow. The average registration accuracy of a meter is taken as the mean of full load (100% of rated load) accuracy, and light load (5-10% of rated load) accuracy. At Company's discretion, tests may be made under average load conditions.

SECTION VII – PARALLEL GENERATION

39. **Design**: Customer's electric generating equipment shall be designed (1) to operate in synchronization with Company's system and (2) to automatically disconnect the facility from Company's system in the event Company's system becomes de-energized. All synchronizing and protective devices to accomplish this mode of operation shall be provided and maintained by Customer.

40. **Disconnection**: Customer shall provide and maintain a manual, lockable disconnect switch providing a visible open and capable of isolating the Customer's generator from the Company's electrical system. This disconnect switch shall be readily accessible to Company personnel at all times, shall include a provision for padlocking it in the open position, and shall meet all other reasonable requirements established by Company.

41. **Customer Responsibility**: Customer shall pay for the cost of rebuilding and/or modifying Company facilities to provide adequate capacity for the parallel generation system and adequate protection for the Company's electrical system.

    Customer shall be subject to Company's Safety Standards and Interconnection Requirements Applicable to Cogenerators and/or Small Power Producers of Minnesota Power as filed annually with the Commission. Copies of such standards shall be made available to Customer upon request and are available at www.mnpower.com.

SECTION VIII – BILLING

42. **Billing Periods**: Bills ordinarily are rendered regularly at monthly intervals, but may be rendered more or less frequently at Company's option. Non-receipt of bills by Customer does not release or diminish the obligation of Customer with respect to payment thereof.

43. **Separate Billing for Each Point of Delivery**: At each point of delivery the use of service is metered separately for each Customer served. Whenever for any reason Company furnishes two or more meter installations for a single Customer, or supplies service under a Rate Schedule which does not require a meter, each point of metering and/or point of delivery where no meter is required is considered as a separate service. A separate Service Agreement is required, and bills are separately calculated, for each such separate service, except where Company may, under special circumstances, waive this requirement.

44. **Adjustment for Inaccurate Meter Registration**:

    Meter too fast or too slow: In the event that any routine or special test of a Company meter discloses its average accuracy of registration to be in error by more than 2%, fast or slow, Company will refund the overcharge for a fast meter or charge for electricity consumed, but not included in the bills previously rendered for a slow meter. The refund or charge for both fast and slow meters will be based on corrected meter readings for a period equal to one-half the time elapsed since the last previous test but not to exceed six (6) months, unless it can be established that the error was due to some cause, the date of which can be fixed with reasonable certainty, in which case the refund or charge will be computed to that date, but in no event for a period longer than one (1) year.

    Whenever any bill or bills have been adjusted or corrected as provided above, the Company will refund to existing Customer any amount due when the amount due exceeds one ($1) dollar or to previous Customer any amount due when the amount due exceeds two ($2) dollars or Company will bill Customer for any amount owed when the amount owed exceeds ten ($10) dollars, as the case may be.

    Meter fails to register or registers intermittently: When the average error cannot be determined by test because the meter is not found to register or is found to register intermittently, the Company may charge for an estimated amount of electricity used, which shall be calculated by averaging the amounts registered over corresponding periods in previous years or in the absence of such information, over similar periods of known accurate measurement preceding or subsequent thereto, but in no event shall such charge be for a period longer than one year.

    If a Customer has called to the Company's attention doubts as to the meter's accuracy and the Company has failed within a reasonable time to check it, there shall be no back billing for the period between the date of the Customer's notification and the date the meter was checked.

45. **Late Payment Charge**: Company shall assess a Late Payment Charge of 1-1/2% or $1.00 per monthly billing period, whichever is greater, on that portion of a retail Customer's account representing charges for Company service(s) past due, if the unpaid balance exceeds $10.00. All late payments received will be credited against the oldest outstanding account balance before the application of any Late Payment Charge. The unpaid Company account balance for a Customer under the Budget Billing Plan or another Company approved payment plan shall mean that the Company budget arrears balance and not the accumulated actual Company balance will be subject to a Late Payment Charge. No Late Payment Charge will be charged on the portion of the Company balance in dispute while dispute procedures are underway. A Late Payment Charge may be retroactively charged on the settled amount after dispute procedures are completed. At Company's discretion, any Late Payment Charge, or portion thereof, may be waived provided such waiver is consistent with the Minnesota Public Utilities Act.

    A. **Residential Customer**: A Late Payment Charge shall be added to any Company account for which payment is not received and credited by Company by the next scheduled billing date. Residential customer who qualifies for assistance under the Low Income Home Energy Assistance Program (LIHEAP) may request waiver of the Late Payment Charge on the "current bill" portion of each monthly bill. Self-qualification using LIHEAP income guidelines will be permitted for Senior Citizens at age 62 or older. Efforts will be made by Company to work with local governmental agencies to pre-qualify Customers where administratively feasible. Customer accounts must be re-qualified annually.

    B. **Nonresidential customer**: A Late Payment Charge shall be added to any Company account for which bill payment is not received and credited by Company within fifteen (15) days from the current billing date.

46. **Delinquent Bills**: Bills become delinquent if not paid on or before the past due date as shown on bill and service may be discontinued upon five (5) days written notice, excluding Sundays and legal holidays, to Customer after becoming delinquent. During the cold weather months, October 15 through April 15, service may be disconnected only as provided in section 60 and Minnesota Statutes, section 216B.096. For residential customers, such written notice of disconnection shall specify a disconnection date not earlier than the third working day after the next scheduled billing date.

47. **Unlawful Use of Service**: In any case of tampering with meter installation or interfering with the proper functioning thereof or any other unlawful use or diversion of service by any person, or evidence of any such tampering, interfering, unlawful use or service diversion, Customer is liable to immediate discontinuance of service, without notice, and to prosecution under applicable laws, and Company shall be entitled to collect from Customer at the appropriate rate for all power and energy not recorded on the meter by reason of such tampering, interfering, or other unlawful use or service diversion (the amount of which may be estimated by Company from the best available data), and also for all expenses incurred by the Company on account of such unauthorized act or acts.

48. **Charge for Restoring Service**: If service to Customer is discontinued by Company for valid cause, then before service is restored, Customer shall pay Company all permitted costs of discontinuing and restoring service. There will be no charge for reconnection when service has been discontinued in the event of a condition determined to be hazardous to Customer, to other Customers of Company, to Company's equipment, or to the public.

    If Customer requests that service be discontinued and subsequently requests restoration of service at same premises within twelve (12) months of discontinuance, the charge for restoring service will be the sum of minimum bills during the elapsed period but not less than all costs of discontinuing and restoring service.

49. **Selection of Schedule**: The Company's Rate Schedules are designed for service supplied to Customer on a continuous annual basis. Customer may elect to take service under any of the Rate Schedules applicable to such service. Company will advise Customer of the Rate Schedules which, in its judgment, are best adapted to Customer's needs on an annual basis, but such advice must be based upon Customer's statements as to Customer's installation and requirements for service and Company assumes no responsibility for the selection of the Rate Schedule made by Customer. If Customer changes selection of a Rate Schedule, Customer may not go back to the previous Rate Schedule for a period of twelve (12) months; provided, however, that a Large Light and Power Customer whose normal monthly firm demand is below 10,000 kW shall be billed on the Large Power Service Schedule in months in which its measured demand, as adjusted for power factor, exceeds 10,000 kW, and shall go back to the Large Light and Power Service Schedule when its demand falls below 10,000 kW. Rules applicable to specific Rate Schedules shall apply when Customer desires service on other than a continuous annual basis, or the term of service provision of the Rate Schedule is greater than one (1) year.

    If, for any cause a Service Agreement is entered into in which is specified a Rate Schedule not applicable to the class of service taken, on discovery of the error all bills rendered during the preceding twelve (12) months will be recalculated in accordance with the properly applicable Rate Schedule and Company will refund to existing Customer any amount due, when the amount due exceeds one ($1) dollar or to previous Customer any amount due, when the amount due exceeds two ($2) dollars, or Company will bill Customer for any amount owed, when the amount owed exceeds ten ($10) dollars, as the case may be. If the amount due Company is not paid within ten (10) days from presentation of bill, or Customer does not agree to payment over a reasonable period of time, or Customer fails to sign a new Service Agreement, Company may, after five (5) days written notice excluding Sundays and legal holidays, disconnect service.

50. **Proration of Bills**: Bills for energy used during a billing period that is longer or shorter than the normal billing period by more than five (5) days shall be prorated on a daily basis, but no billing will be made for three (3) or less days when no energy is used. However, in no event will the total length of service between initial and final service be taken as less than one (1) month.

    No bill will be prorated for change in operating level within the billing period.

51. **Company Billing Errors**: When a Customer has been overcharged or undercharged as a result of incorrect reading of the meter, incorrect application of rate schedule, incorrect connection of the meter, application of an incorrect multiplier or constant or other similar reasons, the amount of the overcharge shall be refunded to the Customer or the amount of the undercharge may be billed to the Customer as detailed in Minnesota Administrative Rules 7820.3800 subparts 2 through 4.

    A. Remedy for overcharge. If a Customer was overcharged, the Company shall calculate the difference between the amount collected for service rendered and the amount the Company should have collected for service rendered, plus interest up to a maximum of three years from the date of discovery. Interest will be calculated as prescribed by Minnesota Statutes, section 325E.02(b). If the recalculated amount indicates that more than $1 is due an existing Customer or $2 is due a person no longer a Customer of the Company, the full amount of the calculated difference between the amount paid and the recalculated amount shall be refunded to the Customer.

    B. Remedy for undercharge. If a Customer was undercharged, the Company shall calculate the difference between the amount collected for service rendered and the amount the Company should have collected for service rendered, for the period beginning one year before the date of discovery. If the recalculated amount due the Company exceeds $10, the Company may bill the Customer for the amount due. The Company must not bill any undercharge incurred after the date of a Customer inquiry or complaint if the Company failed to begin investigating the matter within a reasonable time and the inquiry or complaint ultimately resulted in the discovery of the undercharge.

    C. Exception if error date known. If the date the error occurred can be fixed with reasonable certainty, the remedy shall be calculated on the basis of payments for service rendered after that date, but in no event for a period beginning more than three years before the discovery of an overcharge or one year before the discovery of an undercharge.

SECTION IX – DEPOSITS AND GUARANTEES

52. **When Required**: Company may require Customer to make a deposit or guarantee satisfactory to Company to secure the payment of bills as they become due. Specific conditions requiring deposits or guarantees are identified in Regulation 54. The amount of such deposit shall not exceed twice the average monthly bill of Customer as estimated by Company from Customer's statement in his or her application or as thereafter ascertained.

53. **When Refunded**: The deposit shall be refunded to Customer after twelve (12) consecutive months of prompt payment of all Company bills. Company may, at its option, refund the deposit by direct payment or as a credit on the bill. Upon termination of service, the deposit with accrued interest shall be credited to Customer's final bill and the balance, if any, shall be returned within forty-five (45) days to Customer with a written receipt as required under Minn. Stat. 325E.02(b).

54. **Interest on Deposits**: Interest shall be paid annually on all deposits at the rate specified by Minn. Stat. 325E.02(b) or other applicable laws of the State of Minnesota and will be applied against the electric service bill. Any unpaid interest at time of final settlement of Customer's accounts will be credited to Customer's accounts.

55. **Conditions Requiring a Deposit or Guarantee**: Company may require a deposit or guarantee of payment as condition of obtaining new service or continuing existing service under Minn. Rules Part 7820.4300, 7820.4400 or as may otherwise be provided below.

    A. Customer has outstanding a prior utility service account with another electric or gas utility which at the time of request for service remains unpaid and not in dispute.

    B. Information requested under Minn. Rules Part 7820.4300 or 7820.4400 is not provided within twenty (20) days of the request for service (except where Customer has sought but not yet received credit information from a prior utility).

    C. Information provided pursuant to Minn. Rules Part 7820.4300 or 7820.4400 is determined to be false or erroneous.

56. **Conditional Service Prior to Establishment of Credit**: Conditional service shall be provided expeditiously upon receipt of an application for service, and for up to twenty (20) days until credit has been satisfactorily established. Conditional service may be disconnected immediately without notice if required information or a required deposit or guarantee has not been received twenty (20) days after Company's request.

SECTION X – COLD WEATHER RULE

57. **Applicability**. This section applies only to residential customers of the Company.

58. **Definitions**:

    A. The terms used in this section have the meanings given them in Minnesota Statute, 216B.096.

    B. "Cold weather period" means the period from October 15 through April 15 of the following year.

    C. "Customer" means a residential customer of the Company.

    D. "Disconnection" means the involuntary loss of Company heating service as a result of a physical act by the Company to discontinue service. Disconnection includes installation of a service or load limiter or any device that limits or interrupts Company service in any way.

    E. "Household income" means the combined income, as defined in Minnesota Statutes 290A.03, subdivision 3, of all residents of the Customer's household, computed on an annual basis. Household income does not include any amount received for energy assistance.

    F. "Reasonably timely payment" means payment within five working days of agreed-upon due dates.

    G. "Reconnection" means the restoration of Company heating service after it has been disconnected.

    H. "Summary of rights and responsibilities" means a Commission-approved notice that contains, at a minimum, the following:

        1) an explanation of the provisions of subdivision 5;

        2) an explanation of no-cost and low-cost methods to reduce the consumption of energy;

        3) a third-party notice;

        4) ways to avoid disconnection;

        5) information regarding payment agreements

        6) an explanation of the Customer's right to appeal a determination of income by the Company and the right to appeal if the Company and the Customer cannot arrive at a mutually acceptable payment agreement, and a list of names and telephone numbers for county and local energy assistance, and weatherization providers in each county served by the Company.

I. "Third-party notice" means a Commission-approved notice containing, at a minimum, the following information;

1) a statement that the Company will send a copy of any future notice of proposed disconnection of Company heating service to a third party designated by the residential customer;

2) instructions on how to request this service; and

3) a statement that the residential customer should contact the person the Customer intends to designate as the third-party's name

J. "Company" means Minnesota Power.

K. "Company heating service" means natural gas or electricity used as a primary heating source, including electricity service necessary to operate gas heating equipment, for the Customer's primary residence.

L. "Working days" means Mondays through Fridays, excluding legal holidays. The day of receipt of a personally served notice and the day of mailing a notice shall not be counted in calculating working days.

59. **Company obligations before cold weather period**: Each year, between September 1 and October 15, the Company must provide all Customers, personally or by first class mail, a summary of rights and responsibilities. The summary must also be provided to all new residential customers when service is initiated.

60. **Notice before disconnection during cold weather period**: Before disconnecting Company heating service during the cold weather period, the Company must provide, personally or by first class mail, a commission-approved notice to a Customer, in easy-to-understand language, that contains, at a minimum, the date of the scheduled disconnection, the amount due, and a summary of right and responsibilities.

61. **Cold Weather Rule**:

A. During the cold weather period, the Company may not disconnect and must reconnect Company heating service of a Customer whose household income is at or below 50 percent of the state median income if the Customer enters into and makes reasonably timely payments under a mutually acceptable payment agreement with the Company that is based on the financial resources and circumstances of the household; provided that, the Company may not require a Customer to pay more than ten percent of the household income toward current and past Company bills for Company heating service.

B. The Company may accept more than ten percent of the household income as the payment arrangement amount if agreed to by the Customer.

C. The Customer or a designated third party may request a modification of the terms of a payment agreement previously entered into if the Customer's financial circumstances have changed or the Customer is unable to make reasonably timely payments.

D. The payment agreement terminates at the expiration of the cold weather period unless a longer period is mutually agreed to by the Customer and the Company.

E. The Company shall use reasonable efforts to restore service within 24 hours of an accepted payment agreement, taking into consideration Customer availability.

62. **Verification of Income**:

A. In verifying a Customer's household income, the Company may:

1. accept the signed statement of a Customer that the Customer is income eligible;

2. obtain income verification from a local energy assistance provider or a government agency;

3. consider one or more of the following:

i. the most recent income tax return filed by members of the Customer's household;

ii. for each employed member of the Customer's household, paycheck stubs for the last two months or a written statement from the employer reporting wages earned during the preceding two months;

iii. documentation that the Customer receives a pension from the Department of Human Services, the Social Security Administration, the Veteran's Administration, or other pension provider; a letter showing the Customer's dismissal from a job or other documentation of unemployment; or

iv. other documentation that supports the Customer's declaration of income eligibility.

B. A Customer who receives energy assistance benefits under any federal, state or county government programs in which eligibility is defined as household income at or below 50 percent of state median income is deemed to be automatically eligible for protection under this section and no other verification of income may be required.

63. **Prohibitions and requirements**:

A. Section 63 applies during the cold weather period.

B. The Company may not charge a deposit or delinquency charge to a Customer who entered into a payment agreement or a Customer who has appealed to the Commission under Minnesota Statutes 216B.096 subdivision 8.

C. The Company may not disconnect service during the following periods:

1) during the pendency of any appeal under Minnesota Statutes 216B.096 subdivision 8;

2) earlier than ten working days after the Company has deposited in first class mail, or seven working days after the Company has personally served, the notice required under Minnesota Statutes 216B.096 subdivision 4 to a Customer in an occupied dwelling;

3) earlier than ten working days after the Company has deposited in first class mail the notice required under Minnesota Statutes 216B.096 subdivision 4 to the recorded billing address of the Customer, if the Company has reasonably determined from an on-site inspection that the dwelling is unoccupied;

4) on a Friday, unless the Company makes personal contact with and offers a payment agreement consistent with this section to the Customer;

5) on a Saturday, Sunday, holiday, or the day before the holiday;

6) when Company offices are closed;

7) when no Company personnel are available to resolve disputes, enter into payment agreements, accept payments, and reconnect service, or;

8) when Commission offices are closed. The Company may not discontinue service until the Company investigates whether the dwelling is actually occupied. At a minimum, the investigation must include one visit by the Company to the dwelling during normal working hours. If no contact is made and there is reason to believe that the dwelling is occupied, the Company must attempt a second contact during non-business hours. If personal contact is made, the Company representative must provide notice required under Minnesota Statutes 216B.096 subdivision 4 and, if the Company representative is not authorized to enter into a payment agreement, the telephone number the Customer can call to establish a payment agreement.

D. The Company must reconnect Company service if, following disconnection, the dwelling is found to be occupied and the Customer agrees to enter into a payment agreement or appeals to the Commission because the Customer and the Company are unable to agree on a payment agreement.

64. **Disputes, Customer appeals**:

A. The Company must provide the Customer and any designated third party with a Commission-approved written notice of the right to appeal:

1) the Company determination that the Customer's household income is more than 50 percent of state median household income; or

2) when the Company and Customer are unable to agree on the establishment or modification of a payment agreement.

B. A Customer's appeal must be filed with the Commission no later seven working days after the Customer's receipt of a personally served appeal notice, or within ten working days after the Company has deposited a first class mail appeal notice.

C. The Commission must determine all Customer appeals on an informal basis, within 20 working days of receipt of a Customer's written appeal. In making its determination, the Commission must consider one or more of the factors in Minnesota Statutes 216B.096 subdivision 6.

D. Notwithstanding any other law, following an appeals decision adverse to the Customer, the Company may not disconnect Company heating service for seven working days after the Company has personally served a disconnection notice, or for ten working days after the Company has deposited a first class mail notice. The notice must contain, in easy-to-understand language, the date on or after which disconnection will occur, the reason for disconnection, and ways to avoid disconnection.

65. **Customers above 50 percent of state median income**: During the cold weather period, a Customer whose household income is above 50 percent of state median income:

A. has the right to a payment agreement that takes into consideration the Customer's financial circumstances and any other extenuating circumstances of the household; and

B. may not be disconnected and must be reconnected if the Customer makes timely payments under a payment agreement accepted by the Company.

SECTION XI – RESIDENTIAL CUSTOMER PROTECTIONS

66. **Applicability**: The provisions of the section apply to residential customers of the Company.

67. **Budget billing plans**: The Company shall offer a Customer a budget billing plan for payment of charges for service, including adequate notice to Customer prior to changing budget payment amounts.

68. **Payment agreements**: The Company shall offer a payment agreement for the payment of arrears. Payment agreements must consider a Customer's financial circumstances and any extenuating circumstances of the household. No additional service deposit may be charged as a consideration to continue service to a Customer who has entered and is reasonably on time under an accepted payment agreement.

69. **Undercharges**:

    A. In compliance with Minnesota Statutes 216B.098, the Company shall offer a payment agreement to Customer's who have been undercharged if no culpable conduct by the Customer or resident of the Customer's household caused the undercharge. The agreement must cover a period equal to the time over which the undercharge occurred or a different time period that is mutually agreeable to the Customer and the Company, except that the duration of a payment agreement offered by the Company to a Customer whose household income is at or below 50 percent of state median household income must consider the financial circumstances of the Customer's household. No interest or delinquency fee may be charged as part of an undercharge agreement under this subdivision.

    B. If a Customer inquiry or complaint results in the Company's discovery of the undercharge, the Company may bill for the undercharges incurred after the date of the inquiry or complaint only if the Company began investigating the inquiry or complaint within a reasonable time after it was made.

70. **Medically necessary equipment**: The Company shall reconnect or continue service to a Customer's residence where a medical emergency exists or where medical equipment requiring electricity necessary to sustain life is in use, provided that the Company receives from a medical doctor written certification, or initial certification by telephone and written certification within five business days, that failure to reconnect or continue service will impair or threaten the health or safety of a resident of the Customer's household. The Customer must enter into a payment agreement.

71. **Commission authority**: In addition to any other authority, the Commission has the authority to resolve Customer complaints against the Company, whether or not the complaint involves a violation of this Chapter 216B of Minnesota Statutes. The Commission may delegate this authority to Commission staff as it deems appropriate.

SECTION XII – MISCELLANEOUS REGULATIONS

72. **Conflicts**: In case of conflict between any provision of these approved Service Regulations, Customer's Service Agreement or a Rate Schedule, the provision of the Service Agreement takes precedence, followed by the provision of the Rate Schedule. The Customer's Service Agreement will identify all such conflicts with the Service Regulations or Rate Schedule.

73. **Franchise Limitations**: All Service Agreements are subject to existing franchise limitations.

74. **Regulation and Jurisdiction**: Electric service shall be available from Company at the rates and under the terms and conditions set forth in the currently applicable Rate Schedule or other superseding Rate Schedules in effect from time to time. All the rates and regulations referred to herein are subject to amendment and change by Company. Any such amendments or changes may be subject to acceptance or approval by any regulatory body having jurisdiction thereof.

Call Numbers

New Construction Center

Toll-Free Area Wide 1-877-535-0394
Duluth Area 218-355-2644
Outside Duluth Area 218-720-2644

24-hour Customer Service and Questions About Your Bill

Toll-Free Area Wide 1-800-228-4966
Duluth Area 218-722-2625

Lights Out

24-hour Automated Outage Reporting 1-800-30-POWER (1-800-307-6937)

Automated Meter Reading Reporting 1-888-30-METER (1-888-306-3837)

Shareholder Services

Toll Free Area Wide 1-800-535-3056
Duluth Area 218-723-3974

TTY/TDD

(Hearing Impaired Customer Service) 1-800-367-3180

ALLETE 218-279-5000

Forms

Instruction for Completing the Application Form

Below are detailed instructions for completing each section of the application. If you have questions after reading this information, please call the New Construction Center at 1-877-535-0394 or 218-720-2644.

Overhead Installation—Single Phase

Please provide the name of the person that we can speak with about the details and coordination of your project. Also provide the name and/or names of the person that will be billed for the kilowatt hour usage once the electric meter has been installed.

Project Location

Please provide the address (i.e., 123 Main St, Anytown, MN) of your site as listed on your building permit. If you do not have an address, contact the county where your building site will be located.

County Web site addresses:

Beltrami.....http://www.co.beltrami.mn.us
Cass.....http://www.co.cass.mn.us
Carlton.....http://www.co.carlton.mn.us
Crow Wing.....http://www.co.crow-wing.mn.us
Hubbard.....http://www.co.hubbard.mn.us
Itasca.....http://www.co.itasca.mn.us
Koochiching.....http://www.co.koochiching.mn.us
Lake.....http://www.co.lake.mn.us
Otter Tail.....http://www.co.otter-tail.mn.us
Pine.....http://www.co.pine.mn.us
St. Louis.....http://www.co.st-louis.mn.us
Stearns.....http://www.co.stearns.mn.us
Todd.....http://www.co.todd.mn.us
Wadena.....http://www.co.wadena.mn.us

US Postal Service http://usps.whitepages.com

If you have difficulty in receiving an address, please provide us the nearest neighboring address and a legal description, including a parcel number.

Project Timeline

Minnesota Power will make every effort to meet your project deadline. Please provide us the date that you need the electric power installed. An actual date is required in this field (ASAP or Immediately are not considered valid dates). Remember that we are usually scheduled out two to four weeks and that it takes time to process your request.

Service Load Specifications

This is the most crucial portion of your request. For Minnesota Power to design the installation of facilities, we need to know your electric load requirements. Please have your electrical engineer or electrician provide you this information. If we do not have the correct information additional time, labor and costs could become an issue. **See form 3659**.

Authorization

A signature (or an electronic signature) is required to move forward with your project.

Certified Map or Site Plan

Please provide a Certificate of Survey and/or Utility Plan. If a survey map is not available, please provide a detailed sketch showing property lines, existing structures, proposed structures, any private underground facilities (i.e., well, septic, private underground power to other structures, etc.), setbacks, distance of all structures from property lines, overall dimensions of all structures and proposed work.

Form 6034E Rev. 3/13

Minnesota Power Electrical Design Preconstruction Form

Date _____ / _____ / _____

Architect/Engineer Firm _____

Contact Name _____

Telephone _____ E-mail _____ Fax _____

Mailing Address _____

Business/Customer Name _____

New Service Location Address _____

Checklist of required information before electric utility details can be provided:

- Preliminary site plan (please attach)
- Proposed electrical plan
  - Voltage _____
  - Proposed service size _____(Amps)
  - Phase, single or three _____
  - Configuration (Wye or Delta) _____
  - Proposed single phase demand _____(kW), three phase demand _____(kW)
  - Service conductor size _____; number of conductors per phase _____
  - Metering
    - ☐ Self-contained
    - ☐ CT cabinet
    - ☐ Transition cabinet
    - ☐ Switch gear

Additional information: _____

_____

_____

Please refer to Minnesota Power commercial design specifications for transformer pad and metering configurations.

For energy saving options and incentives, please refer to: **www.mnpower.com/powergrant**
www.mnpower.com/customer_service/cost_savings/index.htm

Minnesota Power requires a completed Commercial Application (Form 6034C) to be returned before a final extension design and extension costs will be provided.

minnesota power
AN ALLETE COMPANY

Return by e-mail to:
newconstruction@mnpower.com

Or by fax to:
218-720-2795

Or by mail to:
Minnesota Power
Construction Center
P.O. Box 1001
Duluth, MN 55806-1001

CONSTRUCTION REQUEST—COMMERCIAL

Contact Information

Contact Role: ☐ Applicant ☐ Architect ☐ Electrician ☐ Engineer ☐ General Contractor ☐ Mechanical Contractor

Last Name _____ First Name _____ Middle _____ Ident. (Jr., III, etc.) _____

Company _____

Daytime Phone _____ Cell Phone _____

Fax _____ Email _____

Mailing Address _____ City _____ State _____ Zip Code _____

Project Location

Site Address _____ City _____ State _____ Zip Code _____

If multiple unit building, number of units _____

Nearest cross street/road or closest neighbor's address _____

Legal Description

Plat Name _____ County _____

Lot Number _____ Range _____

Block Number _____ Section _____

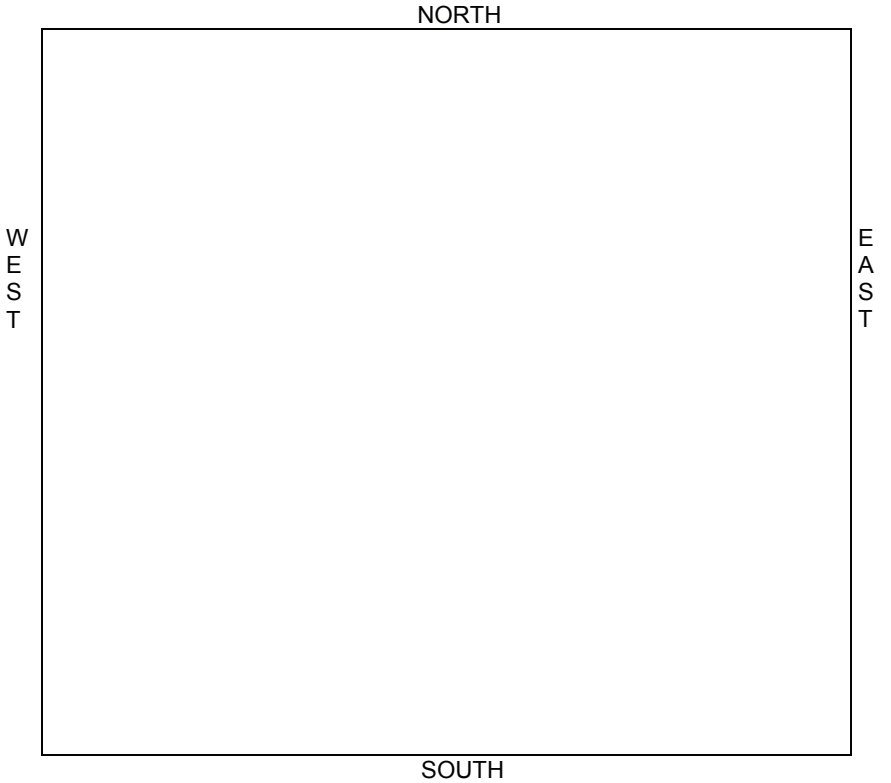
City/Township Name _____ ¼ Section _____

Township Number _____ Parcel _____

Certified Survey Map or Site Plan

Commercial customers must provide a certified survey map or a detailed site plan noting the following:

- Where the new structure will be located
- Location of existing structures
- Distance (feet) structure will be located from roadway
- Location of proposed/existing driveway (note if matting has been installed)
- Location of well lines, sewer lines or other potential obstructions
- Location of electric panel (service entrance)
- Neighboring address and/or nearest intersecting road



Service Information

Electric Utility Load Profile
To be completed by an electrician or electrical engineer

	Single Phase Connected Load		Estimated Demand Load		Three Phase Connected Load		Estimated Demand Load	
Indoor Lighting		kW		kW		kW		kW
Outdoor Lighting		kW		kW		kW		kW
Motor Load		kW		kW		kW		kW
Electrical Heat		kW		kW		kW		kW
Air Conditioning		kW		kW		kW		kW
Kitchen Equipment		kW		kW		kW		kW
Refrigeration		kW		kW		kW		kW
Compressor		kW		kW		kW		kW
Receptacles		kW		kW		kW		kW
Other		kW		kW		kW		kW
Subtotal		kW		kW		kW		kW
Existing Loads		kW		kW		kW		kW
Total		kW		kW		kW		kW
Largest Motor		kW		kW		kW		kW

Temporary Service Size:

Will a temporary service be required? ☐ Yes ☐ No Voltage: _____ Phase: _____

Date Required: _____

Permanent Service Characteristics:

Voltage: 120/240 _____ 120/208Y _____ 277/480Y _____ Other _____

Phase: Single _____ Three _____ Main Breaker Size _____ Amps

Service Conductor Size _____ Number of conductors per phase _____

Metering: ☐ Self-contained ☐ CT cabinet ☐ Transition cabinet ☐ Switch gear

Date Required: _____

Heating and Cooling—Options

Are you planning to take advantage of the following electric heating options?

☐ Dual Fuel (interruptible)
☐ Controlled access (storage)
(Requires a sufficient storage medium—receives energy 8 hours per day from 11:00pm–7:00am)
☐ Storage water heat only
(Requires a sufficient storage water heater—receives energy 8 hours per day from 11:00pm–7:00am)
☐ Undecided
☐ None of the above

What type of heating system are you installing?

_____

_____

_____

If you are planning to install an electric heating system and take advantage of one of our programs, please complete Form 6203, *Dual Fuel/Controlled Access Application*

Billing Information – *Entity responsible to pay for electric usage DURING construction*

Is Existing MP Customer? ☐ Yes ☐ No Existing Customer Account Number _____

Company _____ Business Type _____

NAICS Code _____ www.naics.com Doing Business As (DBA) Name _____

Billing Address _____ City _____ State _____ Zip Code _____

Primary Phone _____ Daytime Phone _____

Cell Phone _____ Fax _____

Email _____ Tax Exempt? ☐ Yes ☐ No *If yes, send copy of ST3 Exemption*

Authorization

Signature _____ **Date** ____/____/____

Printed name _____

Billing Information – *Entity responsible to pay for electric usage AFTER construction*

Is Existing MP Customer? ☐ Yes ☐ No Existing Customer Account Number _____

Company _____ Business Type _____

NAICS Code _____ www.naics.com Doing Business As (DBA) Name _____

Billing Address _____ City _____ State _____ Zip Code _____

Primary Phone _____ Daytime Phone _____

Cell Phone _____ Fax _____

Email _____ Tax Exempt? ☐ Yes ☐ No *If yes, send copy of ST3 Exemption*

Authorization

Signature _____ **Date** ____/____/____

Printed name _____

Return Instructions

Send your completed application and site plan by:

Mail: Minnesota Power—Construction Center
PO Box 1001
Duluth, MN 55806-1001
Fax: 218-720-2795
Email: newconstruction@mnpower.com.

Any questions can be directed to the Construction Center at 1-877-535-0394 or 218-355-2644.
Minnesota Power web site: http://www.mnpower.com/

Incomplete application forms will be returned and your project will be placed on hold until a complete application is received.

Form 4789 Rev. 2/13

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AN ALLETE COMPANY

Outdoor & Area Light Agreement

The customer agrees to rent Area Light(s) and any pole(s) indicated below for a minimum of six months and authorizes Minnesota Power to charge for them according to the applicable rate schedule and electric service regulations. Monthly charges will be as shown below, plus any applicable taxes and plus or minus any authorized adjustment for the cost of generation fuel, unless superseded by different rates approved by the Minnesota Public Utilities Commission.

Work Order Number

Account Number

Minnesota Power will install the light(s) indicated on an existing pole or poles that it owns unless the customer requests that it be placed where no pole exists, in which case Minnesota Power will set the necessary pole or poles for the additional charge indicated below, plus applicable taxes and adjustments.

Minnesota Power will be responsible for the customary and usual costs of extending electric service to a light. Any costs beyond that amount will be the responsibility of the customer and will be communicated in advance.

Maintenance, lamp replacement and electricity for operation of the light will be provided by Minnesota Power as specified in its Area Lighting Rate Schedule.

All lamps are high-pressure sodium or metal halide type. The terms stated are offered to Minnesota Power customers only.

HIGH PRESSURE SODIUM				
Code	Description	Monthly Charge	Qty.	Total
I	8,500-lumen area light (100-watt)	$10.19		
X	14,000-lumen area light (150-watt)	$11.73		
J	23,000-lumen area light (250-watt)	$16.65		
G	23,000-lumen floodlight (250-watt)	$16.65		
Z	45,000-lumen floodlight (400-watt)	$22.22		
METAL HALIDE				
R	17,000-lumen floodlight (250-watt)	$16.44		
S	28,800-lumen floodlight (400-watt)	$20.12		
U	88,000-lumen floodlight (1000-watt)	$33.39		
6	Pole	$ 4.70		
			Total	

Minnesota Power Representative

Customer Name (Print)

Customer Address

City State Zip

Daytime Phone

Customer Signature

White – Office copy

Canary– Customer copy

Form 3659 Rev. 9/08

ELECTRIC UTILITY LOAD PROFILE

Project _____ Date _____

Location/Address _____

Load Data

	Single Phase Connected Load		Estimated Demand Load		Three Phase Connected Load		Estimated Demand Load	
Indoor Lighting		kW		kW		kW		kW
Outdoor Lighting		kW		kW		kW		kW
Motor Load		kW		kW		kW		kW
Electrical Heat		kW		kW		kW		kW
Air Conditioning		kW		kW		kW		kW
Kitchen Equipment		kW		kW		kW		kW
Refrigeration		kW		kW		kW		kW
Compressor		kW		kW		kW		kW
Receptacles		kW		kW		kW		kW
Other		kW		kW		kW		kW
Subtotal		kW		kW		kW		kW
Existing Loads		kW		kW		kW		kW
Total		kW		kW		kW		kW
Largest Motor		kW		kW		kW		kW

Temporary Service

Will a temporary service be required? Yes ☐ No ☐ Voltage: _____ Phase: _____

Date Required: _____

Permanent Service Characteristics

Voltage: 120/240 _____ 120/208Y _____ 277/480Y _____ Other _____

Phase: Single _____ Three _____ Main Breaker Size _____ Amps

Date Required: _____

Refer to MP for Availability of Service Characteristics and Transformer Pad Specifications

Please Attach Plot Plan Designating Preferred Point of Delivery

Comments:

_____

_____

_____

_____ _____ _____

Name (please print) Phone Firm Name