## Electric Rules and Regulations

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1.0 General Information

1.1 Introduction

This Madison Gas and Electric Company (MGE) Electrical Contractors’ Handbook gives contractors, architects, engineers, and customers answers to common questions about residential, commercial, and industrial electrical installations and hookups.

Any rules or regulations conform with and supplement local, municipal, and State of Wisconsin electrical codes.

For a complete legal and definitive description of all procedures, regulations, and responsibilities, refer to the Madison Gas and Electric Company Rates and Service Rules Manual available from MGE and on file with the Public Service Commission of Wisconsin (PSCW).

1.2 Definitions

1.2.1 Service Drop refers to the overhead conductors between the distribution pole and the point of attachment at the applicant's service entrance facility. A Service Drop is normally located on the customer's property and is of secondary voltage.

1.2.2 Service Lateral refers to the underground conductors between the Distribution System, including any risers on a pole or other structure and the customer's service entrance facility. A Service Lateral is normally located on the customer's property and is of secondary voltage.

1.2.3 Distribution System includes all primary lines, secondary lines, transformers, and control equipment necessary to provide points of connection with Service Drops or Service Laterals. Though located on customer property, transformers and associated equipment are part of MGE's Distribution System.

Normally, the Distribution System is located within an electric utility easement on private property or on public streets, alleys, and roads so that it may be extended to other applicants. Property owners grant easements without cost to MGE.

1.2.4 Transmission System includes all overhead lines, underground lines, and transformers operating at or above 69,000 volts line-to-line or 39,800 volts line-to-ground. In addition, it includes all control equipment used to operate these facilities.
1.3 Determine Location of Electric Facilities in Area of Proposed Work

Prior to performing any excavation, grading, blasting, construction, erection, or demolition work within MGE's service territory, call Diggers Hotline at 1-800-242-8511 or 811 or visit www.diggershotline.com to obtain the location of our facilities and other participating utility facilities. We will provide facility location prints and field-locating services promptly.

It is necessary for you to place the request 72 hours (three working days) in advance of nonemergency excavation as required in Section 182.0175 of the Wisconsin Statutes. Make an additional request for location of facilities when the project is delayed or interrupted for ten or more workdays or when changes are made in the proposed construction.

You, as the contractor, are responsible for maintaining the stakes and markings placed by our locating personnel who mark the location of our existing facilities. If the markings are inadvertently destroyed or additional work is to be performed which requires re-staking of your project area, call Diggers Hotline at 1-800-242-8511 or 811 again.

When emergency excavation is necessary, call Diggers Hotline at 1-800-242-8511 or 811 during normal working hours. If there is an emergency outside of normal working hours, call 608-252-7111 or 1-800-245-1123. MGE locating personnel will respond promptly and field locate our facilities for you.

An emergency location is defined as an underground locate request where excavating or demolition must begin prior to the standard three business days. An emergency exists only when one or more of the following conditions exists:

a. The unforeseen excavation which, if not performed, could result in the loss of life or limb.
b. The excavation is required to repair a service outage.
c. Excavation is required prior to three business days in order to prevent property damage.
d. An unstable condition exists which may result in any of the conditions listed above (for example, a leak in any service main or a fault in a primary or secondary wire and/or cable).

When calling in an emergency excavation, inform the operator that an emergency situation exists and be prepared to explain which of the above conditions is in effect. The operator will prepare the ticket for immediate transmission and issue a start date equal to the time the excavation is scheduled to commence.

1.3.1 Placement of Facilities Adjacent to Electric Distribution

Facilities being installed to cross existing underground electric distribution wires and/or conduit (operating at less than 39,800 volts to ground) at or near an angle of 90 degrees must maintain a minimum clearance of 6 inches. Contact MGE Engineering for review of the circumstances involved in all these installations.

Facilities that are to be installed parallel or nearly parallel to existing underground electric distribution wires and/or conduit must provide a minimum of 12 inches of horizontal clearance. Unless it is planned to shore the ditch, increase the horizontal clearance 12 inches for each 12 inches of depth of ditch below the level of the existing facilities.

Contact MGE Engineering for review of the circumstances involved in all these installations.

Aboveground appurtenances, poles, buildings, etc., placed adjacent to overhead electric facilities must conform to the clearances specified in the Wisconsin Administrative Code which has adopted, with some changes, the National Electric Safety Code and the National
Electric Code. If you have any question as to the clearance required, call MGE Engineering.

If you are engineering a project or planning to bid on a project that may jeopardize existing MGE electric facilities, call MGE at 608-252-7373 for assistance in providing relocation costs or coordination of work activities.

1.3.2 Placement of Facilities Adjacent to Electric Transmission

Facilities being installed to cross existing underground electric transmission facilities (operating at 39,800 or more volts to ground) must maintain an 18-inch minimum clearance. Contact MGE Engineering for review of the circumstances involved in all these installations.

Facilities that are going to be installed parallel or nearly parallel to existing underground electric transmission cables or conduit must maintain a minimum horizontal clearance of 18 inches. Unless it is planned to shore the ditch, increase the horizontal clearance 12 inches for each 12 inches of depth of the ditch below the level of the transmission line.

Aboveground appurtenances, poles, buildings, etc., placed adjacent to overhead electric facilities must conform to the clearances specified in the Wisconsin Administrative Code which has adopted the National Electric Safety Code and the National Electric Code. If you have any question as to the clearance required, call MGE Engineering.

If you are engineering a project or planning to bid on a project which may jeopardize existing MGE electric transmission facilities, call MGE at 608-252-5644 for assistance in providing relocation costs or coordination of work activities.

1.3.3 Excavation Near Underground Electric Facilities

After the location of all underground electric facilities has been determined, make sure all machine operators, foremen, and supervisors on the project are aware of their location. Do not forget new people on the job. They will not know the facilities are there unless you tell them.

Excavations crossing or adjacent to electric facilities must conform with all applicable federal, state, and local codes and ordinances.

Use caution when excavating near underground electric facilities to ensure no damage is inflicted to the cable jacketing or concentric neutral wires. Do not use poured concrete within 18 inches of underground electric cables due to the deterioration it causes to the insulation medium on the cables. This deterioration is not immediate but occurs over time. The length of time to cable failure depends on many factors including strength of concrete, water table, and other environmental conditions.

Do not use any power-operated excavating or earth-moving equipment within 18 inches of the underground facility and the cutting edge of the tool. This is covered in Section 182.0175 of the Wisconsin Statutes. If you are within 18 inches of the underground facility, it will be necessary to hand dig around it to prevent damage.

Shoring, sloping, and/or some equivalent means meeting OSHA requirements must be used to prevent caving or movement of ditch banks adjacent to underground electric facilities.

Provide proper supports when excavating near or under electric facilities. These supports are not to damage the facilities they are supporting. If you are uncertain as to what is required, call MGE Engineering.

Do not attempt to bore past an underground electric facility without adequately determining sufficient clearance exists. It is recommended that facilities be exposed as necessary to
prevent damage. Note: Even a simple underground electric service is capable of causing severe injury and/or death if handled improperly.

On all excavations adjacent to MGE underground electric transmission facilities, an MGE representative is to be present. Call 608-252-7188 to coordinate this inspection work.

1.3.4 Construction Near Overhead Electric Facilities

After the location of overhead electric facilities has been determined, make sure all machine operators, foremen, and supervisors on the project are aware of their location. Do not consider any overhead wire to be insulated. Do not park tall equipment or create a load/unload area under overhead conductors.

Any time you leave the traveled portion of a road, you must consider that the overhead line clearance may not be sufficient for your tall equipment. Any overhead electric conductor including 120/240-volt service is sufficient to cause severe injury and/or death if contacted.

OSHA requires that you maintain a minimum safety clearance of 10 feet when using backhoe excavators or boom lifts, erecting scaffolding, raising dump boxes on vehicles, and during use of any tall equipment near overhead electric facilities.

Contact the MGE Construction Department if crane operations could get closer than 20 feet to the overhead electric facilities. The crane operator shall comply with OSHA 1926.1408 and 1926.1409 if the crane could get closer than 20 feet to an overhead conductor.

When excavating is to be performed adjacent to overhead poles and/or structures, leave a minimum of 2 feet of ground at the ground line of the pole along with a one-to-one slope from that point to the new grade level. Other arrangements can be made by contacting MGE Construction Engineering.

If you believe any structure, permanent or temporary, will be in conflict or close proximity to overhead conductors or a Service Drop, contact MGE Construction Engineering.

1.3.5 Blasting Near Any Electric Facility

Do not perform blasting operations in the vicinity of any MGE facilities until we have been notified and measured, satisfactory to us, for safe control of the blasting and so that protection of all MGE facilities have been taken. Such measures will include preplanned emergency procedures.

When blasting operations are performed, they shall be done only by a licensed blaster and strictly in accordance with all local, state, and federal codes and regulations. Liability for any damage remains the responsibility of the party performing the blasting.

1.3.6 Backfilling in the Area Near Underground Electric Facilities

Report any scrapes, cuts, abrasions, or broken underground cables and/or conduit that have occurred while the facilities are exposed. Call MGE at 608-252-7111 to report any damage and have the underground facilities inspected prior to backfilling. We will inspect and make necessary repairs as warranted.

Where excavation removes the original ground under concrete conduit and manhole systems, backfill the area below this facility with pit run or washed sand compacted mechanically in 6-inch lifts to provide the same or better support than was there prior to the excavation.

Replace the sand where excavation removes the original thermal sand from around underground transmission facilities. MGE personnel on the site will make the determination
on whether the backfill is appropriate.

Compact the backfill above the facilities by mechanical compaction in accordance with MGE specifications.

1.3.7 Grading and Landscaping Work

When grading or landscaping work is planned which involves the lowering of existing grades, determine the depth of the underground facilities in the area by hand excavation under MGE guidance before the work commences. Raising or lowering of underground electric facilities due to grade changes is at the cost of the party changing the grade.

1.4 Certificate of Inspection Required Before Connection

MGE requires a Certificate of Inspection from the authorized electrical inspector of the appropriate town, village, or city before connecting new or modified services.

If the area or facility is not required by law to have an authorized electrical inspector, MGE will accept, in lieu of the Certificate of Inspection, a signed and notarized affidavit from the electrical contractor which certifies the wiring conforms to the Wisconsin State Electrical Code.

1.5 Before Applying for Service Connections

Service connections and extensions are made in accordance with filed rules and regulations. However, MGE recommends that before you apply for service or prepare wiring plans, you give attention to the following:

1.5.1 Contact the MGE Electric Construction Engineering Department as soon as you begin planning for your facility.

1.5.2 Applications

Apply for service as far in advance as possible of the date service is required. You may apply for service at the MGE General Office Facility or at:


Provide the date your service is required.

Completely identify property location including name and address and lot and block number, and provide site plans when possible.

For commercial and industrial buildings, MGE needs the architect's and engineer's names and telephone numbers, the type of building, and the planned load.

In areas not served by municipal sewer and water, include a copy of septic and water system prints.

1.5.3 Voltages

Check with MGE about the availability of 120/208-volt or 277/480-volt three-phase, four-wire service.

Check the low-voltage network map (see NET-1) to determine if you are served by the underground low-voltage network system which covers the downtown Madison area (see Section A 7).
1.5.4 Underground Service

Check or inquire about primary or secondary services.

Review Section 19.16 of the Madison General Ordinances entitled "Underground Utility Entrance Facilities" concerning underground entrance requirements.

1.5.5 Metering

Check if there are proposed metered locations greater than 200 amps. If so, a transformer-rated meter socket is required.

1.5.6 Underground Vaults in the Network Area

Customers with present or prospective loads of 75 KW or more must provide transformer vaults approved by MGE and meet all applicable specifications and governmental codes (see Section A 7).

1.5.7 New Residential or Commercial Developments

Check municipal streetlighting requirements for new plats.
2.0 Character of Service

MGE distributes electric current to residential, commercial, and network customers as follows:

2.1 Residential, Commercial, and Network

Transformers supplied by MGE are typically available at 120/240 and 120/208 volts, 277/480 volts, 120/208 (low-voltage network), and 277/480 (spot network). Transformers are standard ratio and standard impedance single- and three-phase oil-cooled types only.

2.2 Residential and Commercial

2.2.1 Single-phase, 60-cycle alternating current is available at 120/240 volts or, in special circumstances, 120/208 volts over a three-wire service.

2.2.2 Customers outside the low-voltage network system who provide us with acceptable space for transformer installations may obtain three-phase 120/208 volts or 277/480 volts over a four-wire service subject to the following minimum 15-minute demand: 120/208 volts, 75 KW; 277/480 volts, 150 KW.

2.3 Commercial Only

2.3.1 Three-phase, 60-cycle alternating current may be supplied at 2,400/4,160 volts for large power installations over a four-wire service. This service is available at limited locations and at MGE's discretion.

2.3.2 Three-phase, 60-cycle alternating current at 7,970/13,800 volts over a four-wire service is available at limited locations and at MGE's discretion.

2.4 Network Only

2.4.1 Sixty- (60) cycle alternating current may be supplied at 120/208 volts over a three-wire or four-wire service.

2.4.2 Three-phase, four-wire, 277/480-volt spot network service is provided only upon MGE's specific written approval where:

- The customer requests it,
• The 15-minute demand exceeds 750 KW,
• Suitable multiple 13.8-KV circuits are available at the proposed site, and
• The customer provides necessary transformer space.
3.0 Service Facilities

3.1 Service Entrance Specifications

MGE specifies, in writing, customers' service entrance locations, including service entrance conduit sizes, quantity, and termination points.

3.2 For each customer's building or premise, MGE supplies:

- No more than one Service Drop or Service Lateral;
- No more than one class of service;
- No more than one meter; and
- Service to no more than one service entrance, main disconnect, or MGE-approved metering device.

3.2.1 Exceptions:

- When more than one point of delivery is necessary because of voltage regulation, governmental requirements, or regulatory orders.
- When more than one Service Drop or Service Lateral of the same class of service is necessary to meet the load requirements of large installations.
- When row houses and other multiple occupancy buildings comply with the State electrical code by having areas separated by fire walls.
- When an additional service or meter may be required to accommodate special approved service rates.
- Where multiple-occupancy buildings require separate meters for individual tenants, more than one meter is allowed.
- When total load exceeds 800 KW for single-metered commercial customers, two classes of service are available.
4.0 Overhead Service Drops and Underground Service Laterals (Non-Network)

4.1 Requirements

4.1.1 MGE installs, owns, and maintains all Service Drops and Service Laterals.

4.1.2 For overhead Service Drops, the applicant’s service entrance facility must be located at a point readily accessible to the Distribution System and at a height to provide for proper code clearance of the Service Drop wire.

Where it is necessary to cross adjacent property, the applicant must make arrangements with the landowner for MGE to obtain the proper easements.

The applicant must also obtain the proper location for the service head from MGE and provide suitable anchorage for supporting the Service Drop on the building.

4.1.3 If the present or prospective load is 75 KW or more, MGE specifies that the applicant must provide either:

A transformer vault with vehicle access constructed in accordance with all applicable codes.

Space for the installation of self-enclosed, pad-mounted transformers and switchgear with vehicle access and in accordance with Wisconsin State Electrical Code (PSC 114.317).

In high-rise buildings, conduit extensions, space for the installation of transformers, primary cables, and associated switchgear and, upon our request, suitable space on-site outside the building for the installation of high-voltage fused disconnecting equipment.

4.2 Location of Service

All Service Drops and Service Laterals will be extended from the MGE Distribution System to the customer’s service entrance facility over the most direct and properly engineered route as determined by MGE. The customer’s service entrance point will be specified by MGE.

4.3 Customer Contribution for Service Facilities

Single-phase Service Drops or laterals will be provided up to 120 feet free and three-phase Service Drops or laterals will receive up to 50 feet free. This is measured from the Distribution
System to the customer's service entrance facility using the most direct and properly engineered route as determined by MGE. The customer will pay an incremental cost per foot for all additional footage to the customer's specified service entrance point. See MIS-10 and MIS-11 for costs and methods for determining these charges.

4.4 Rights-of-Way, Easements, and Maintenance of Grade

The applicant or developer is responsible for furnishing MGE with rights-of-way and easements within reasonable time to meet service requirements. The right-of-way must be cleared of trees, stumps, and other obstructions prior to installation. After installation, the right-of-way may be used by the grantor in any way that does not interfere with MGE's ability to maintain its electrical facilities at any time.

The right-of-way must be graded within 6 inches of final grade and be maintained by the applicant during utility construction. Future changes or relocations of our facilities due to changes in grade will be at the property owner's expense.
5.0 Meters and Meter Equipment

5.1 Customer Responsibility

Customers are responsible for furnishing and installing all wiring for meter installations, including such associated facilities as meter sockets, meter enclosures, meter test block enclosures, current transformer enclosures, etc., as required for the appropriate type of metering installations specified in this section. Meter sockets must be approved by MGE for the particular type of service and comply with local and state codes.

5.2 Access

5.2.1 In outdoor installations, locate meters where access won't promote damage to lawns, gardens, or shrubbery.

5.2.2 Meters must be installed in accessible areas with a minimum of 3 feet of frontal clearance so MGE personnel can read and test them without causing customer inconvenience or a safety hazard to MGE personnel.

5.2.3 For multiple-unit residential, commercial, and industrial customers such as apartments, office buildings, stores, and factories, meters should be located in easily accessible portions of the buildings.

Where there are a number of meters, they must be grouped together and have the sockets marked to indicate the portions of the buildings supplied by each meter.

Where meters are mounted side by side, leave at least a 7-inch space between each meter and the nearest adjacent piece of equipment to permit testing and adjusting. Use of a 6-inch space section may be required to meet this requirement.

5.3 Mounting and Location

5.3.1 Meters mounted inside or outside must be between 4 and 6 feet above final grade. Final grade must be established before the meters can be set.

Exception: Pedestal-type meter sockets and multiple meter stacks must be between 3 and 6 feet above final grade for outside installations.
Exception: Multiple meter stacks must be between 2 and 6 feet above final grade for inside installations and between 2.5 and 6 feet above final grade for outside installations.

5.3.2 Meters must be located in such a manner as not to interfere with gas piping or gas metering (see MIS-2 to determine minimum clearance required).

5.3.3 Meter mountings must be secure, free of vibrations, and installed plumb.

5.3.4 Meters must be free from unusual temperature and moisture conditions.

5.3.5 All single and two-family residential buildings must have the meter installation in an accessible area outside the structure. Other buildings that are not easily accessible to MGE personnel during normal working hours must also have an outside meter installation.

5.3.6 In areas subject to damage from falling ice or debris, installation of an ice shield is required (see MIS-12).

5.4 Removal and Relocation

5.4.1 Only MGE employees may set, remove, or relocate meters.

5.4.2 On jobs where it is necessary to temporarily disconnect or relocate a meter, contact MGE New Construction Services at 608-252-7373 at least two days before the work is to be done.

5.4.3 Where new wiring has been done, inspection permits and/or signed and notarized affidavits are required before MGE will set the meter.

5.4.4 MGE will seal all meter switches, meter sockets, enclosures, and meters at the time of installation. If a seal is broken in the event of an emergency, contact MGE New Construction Services within 48 hours for resealing.

5.5 Residential

Note: In the network area, a switch-fuse-meter sequence is required.

5.5.1 Horn-type bypass or manual sealable lever-operated bypass for self-contained meter sockets with a meter-switch-fuse sequence for:

- Single-phase installations of 320 amperes or less (see RES-1, RES-2, RES-3, RES-4, and RES-5).
- Three-phase installations of 100 amperes or less (see COM-1).
- Multiple metering installations for two to six units (see RES-7). All apartments having more than six units should contact MGE (see RES-8).

5.5.2 Transformer-rated meter sockets and current transformers may require switch-fuse-meter sequence for:

- Single-phase installations over 320 amperes of actual load (see RES-6).
- Three-phase installations over 200 amperes of actual load (see COM-7).
- Single-metered and single-phase installations of over 200 amperes for single or multiple-family residential units (see COM-3).
- Single-metered and three-phase installations of over 200 amperes for single-
multiple-family residential units (see COM-7).

5.5.3 Underground Service

- For underground service of 200 amperes or less, you must use a meter socket rated for 200 amperes with horn-type or manual sealable lever bypass with meter-switch-fuse sequence (see RES-1 and RES-2).
- Underground services over 200 amperes must have either:
  - Current transformer installations with switch-fuse-meter sequence (see COM-3).
  - Optional 320-ampere meter pedestal (see RES-5).
  - Optional metering transformer cabinets for services from 201 to 600 amperes and 250 volts or less with single-meter installation and meter-switch-fuse sequence. An outdoor metering transformer cabinet installation is required for residential applications. A main service disconnect must be used ahead of the metering cabinet for use on the AC low-voltage network (see RES-6).

5.5.4 Farm Services - Pole Top

Pole-top disconnects of 200 amperes or 400 amperes, single-phase, 120/240-volt with space for a current transformer are permitted. If the option of a standby generator breaker is selected, it must be configured in a break-before-make switch sequence.

The metering sequence will be meter-switch-fuse. For customer-owned generating equipment connections, see Section 12, Customer-Owned Optional Standby Electric Generating Equipment (see MIS-7 and MIS-8).

5.5.5 Off-Peak Water Heating Installation

Wiring for residential off-peak water heating installation must include a socket for the off-peak meter. Use a meter-switch-fuse sequence (see RES-9, RES-9A, and RES-9B).

5.6 Commercial and Industrial

Note: All services of 460 volts or more must be switch-fuse-meter sequence.

5.6.1 Manual sealable, lever-operated bypass, self-contained heavy-duty jaw-released meter sockets with a meter-switch-fuse sequence for:

- Single-phase installations of 100 amperes or less (see COM-1).
- Three-phase installations of 100 amperes or less (see COM-1).

5.6.2 Manual sealable, lever-operated bypass, self-contained heavy-duty jaw-released meter sockets with a switch-fuse-meter sequence for:

- Single-phase installations for 101 to 200 amperes (see COM-2).
- Three-phase installations for 101 to 200 amperes (see COM-2).

5.6.3 Transformer-rated meter sockets and current transformers with switch-fuse-meter sequence for:

- Single-phase installations over 200 amperes for commercial and industrial customers (see COM-3 and COM-4).
Three-phase installations over 200 amperes for commercial and industrial customers (see COM-6, COM-7, and COM-13).

5.6.4 For multiple-meter installations in commercial and industrial buildings, a main building disconnect is required (see COM-8, COM-9, and COM-10).

5.6.5 Optional metering transformer cabinets for services of 250 volts or less with single-meter installation and meter-switch-fuse sequence. Commercial or industrial single-metered customers with total service capacity of not more than 2,000 amperes may use an indoor or outdoor metering transformer cabinet installation.

The customer must provide an MGE-approved cabinet and install it and associated service entrance equipment in accordance with all applicable codes (see COM-11 and COM-12). THIS DOES NOT APPLY TO THE AC LOW-VOLTAGE NETWORK AREA.

5.6.6 Three-phase, primary-metered service supplied at 4,160 volts four-wire or 13,800 volts four-wire is available at limited locations and at MGE's discretion. Customers taking service at primary voltage must provide all the necessary switchgear for metering and fused protection of the primary side of the transformers.

A switch-fuse-meter sequence must be used. Drawings of primary metered switchgear must be approved by MGE Construction Engineering prior to purchase (see COM-14).
6.0 Non-Network Overhead and Underground Distribution Extensions

6.1 To Extend Service

Upon written request, MGE will extend its Distribution System to provide service to new customers in accordance with the following rules and regulations.

6.2 Definition of Distribution System

The Distribution System includes all primary lines, secondary lines, transformers, and control equipment necessary to provide points of connection with Service Drops or Service Laterals. Though located on customer property, transformers and associated equipment are part of MGE's Distribution System.

Normally, the Distribution System is located within an electric utility easement on private property or public streets, alleys, and roads so that it may be extended to other applicants. Property owners grant easements without cost to MGE.

Service voltages supplied by MGE are typically available at 120/240 and 120/208 volts (residential), 120/208 (low-voltage network) and 277/480 (spot network), and all of the above for commercial applications. Transformers are standard ratio and standard impedance single- and three-phase oil-cooled types only.

6.3 MGE's Responsibility

MGE designs and installs the distribution facilities in the most safe, reliable, environmentally accepted manner and at the lowest reasonable cost following accepted engineering and planning practices as determined by MGE.

6.4 Items Included in Costs of Extension

If a service extension is required, the customer may be responsible for the cost. The customer's calculated cost of the required extension (to be paid in advance) will not include individual transformers or increased transformer capacity but will include the cost of:

6.4.1 Extension of primary and secondary facilities (overhead and/or underground), including excavation and restoration.
6.4.2 Reconstruction of existing facilities, including changing from single phase to three phase or construction of new feeders made necessary solely by addition of such customers.

6.4.3 Tree trimming and rights-of-way clearing.

6.4.4 Abnormal trenching costs.

6.4.5 Securing easements.

6.4.6 Moving conflicting facilities.

6.4.7 Overtime expenses. Note: For load increases, only the overtime portion of labor applies.

6.4.8 All other costs associated with making the extension, including applicable overheads.

6.5 Definition of Allowances

The average embedded cost for providing a service to an individual customer is used to determine any applicable allowances. MGE determines the average embedded cost allowance (AECA) for the following classes of customers:

6.5.1 Energy-Only Basis

These are generally residential and small commercial customers requesting extensions to serve their facilities on individual lots of multi-lot plats. MGE calculates its average embedded cost of the distribution facilities by dividing the overall depreciated embedded cost by the total number of customers billed in that classification.

6.5.2 Demand and Energy Basis

These are generally commercial customers with demand greater than 20 KW. Their average embedded cost on a per-kilowatt-of-demand basis is calculated by dividing the overall depreciated embedded cost by the total kilowatt demand for this customer class.

6.5.3 Streetlighting Facilities

The average embedded costs are determined on a per-fixture basis by dividing the overall depreciated embedded cost by the total number of fixtures involved.

6.6 Allowances

MGE recomputes and files the AECA annually on March 1. For current information, call MGE Construction Engineering.

6.7 Application of Allowances

MGE applies the allowances to each class of customer as follows:

6.7.1 Energy-Only Customers

The requesting customer receives allowances only for lots having structures beyond the foundation stage that take a Service Drop or Service Lateral directly from the distribution extension being made.

The customer pays the total cost of the extension as previously described, less the average embedded cost per customer multiplied by the number of customers to be served by the extension. The cost is computed on an estimated basis, and the requesting customer makes
an advance deposit in that amount.

Refunds, on an average embedded-cost-per-customer basis, are made to the original customer who made the deposit as new customers take Service Drops or Service Laterals within five years of the original extension completion. The refund equals whichever is greater - the AECA in effect at the time the contributed extension was installed or the AECA in effect at the time the meter was set.

In either case, MGE reduces the refund by its costs incurred designing and installing the distribution facilities for the second customer. The total refund never exceeds the original total amount paid, and no interest is paid on refunds.

MGE sends a contract letter specifying the terms and conditions for any refunds to the original contributor.

6.7.2 Demand Plus Energy Customers

Customers requesting service that requires rearrangement of or new distribution facilities pay in advance the total cost of the rearrangement or new extension, less the AECA per KW of demand multiplied by the customer's estimated average billed demand. The cost is estimated, and a deposit equal to the estimate is made in advance.

Upon completion of the work, the project is reviewed to determine whether it is within the original scope. If the project is out of scope, an appropriate refund or additional bill will be submitted to the original contributor.

The customer's estimated average billed demand is determined by using 40 percent of the customer's stated service entrance facility rating. It is based on MGE's experience with the relationship between a customer's actual load and the size of the service entrance.

For customers requesting an increase in facilities, the cost is the total distribution facility construction cost as defined in Section 6.4, less an allowance equal to the incremental increase in demand multiplied by the average embedded-cost-per-KW, less the accumulated depreciation of the removed facilities, less the salvage value of the facilities removed.

The cost is estimated, and the customer makes a contribution equal to that estimate in advance. Upon completion of the work, the project is reviewed to determine whether it is within the original scope. If the project is out of scope, an appropriate refund or additional bill will be submitted to the original contributor.

After a deposit has been received, MGE will send a contract letter specifying the possibility of refunds to the customer. It explains the circumstances under which refunds may occur as a result of the addition of new customers taking Service Drops or Service Laterals off the extension within five years of the completion of the original extension.

The refund equals the greater of the AECA in effect at the time the contributed extension was installed or the AECA in effect at the time the meter was set. In either case, MGE reduces the refund by its costs to design and install the distribution facilities for the second customer. The total refund never exceeds the original total amount paid, and no interest is paid on refunds.

6.7.3 Streetlight Extensions

For streetlight extensions, Service Drops, or Service Laterals, the cost to the requesting party is the total cost of the facilities needed to provide service to the streetlights, less the AECA per fixture. MGE collects this cost in advance on an estimated basis.

Final appropriate refunds or additional bills are submitted to the original contributor upon
completion of the installation. MGE treats each request for service and/or extension individually for payment.

6.7.4 More Than One Rate Class

For extensions to more than one customer where some are billed on energy only and some on demand and energy, MGE determines the total allowance by either allocating certain costs of the extension to each class separately or by adding the allowances together to derive one total allowance to offset one total cost. MGE chooses the method that minimizes confusion over payment and/or refund policies.

6.8 Upgrade of Distribution Facilities

For customers who require distribution facility upgrades, MGE determines allowances as follows:

6.8.1 Demand Schedule

Customers served under a demand rate schedule receive an embedded cost allowance. The KW of demand used in computing the allowance is the customer's estimated average billed demand after the upgrade, less the customer's estimated average billed demand before the upgrade.

6.8.2 Customers Transferring to a Different Energy-Only Subclassification

If a customer changes energy-only subclassifications after the upgrade, the customer receives an allowance equal to the difference between the two average embedded cost allowances.

6.8.3 Customers Transferring to a Demand Classification

If a customer transfers from an energy only to a demand plus energy classification after the upgrade, the customer receives an AECA. The KWs of demand to be used in determining the allowance is the customer's estimated average billed demand after the upgrade, less an estimate of the customer's prior average billed demand (based on calculations described in Sections 6.7.1 and 6.7.2).

6.9 Relocation and Rebuilding of Existing Facilities

Submit a written request to relocate service and distribution facilities at the customer's expense, including replacement of overhead with underground.

MGE computes the estimate by calculating the total cost of the proposed work, including applicable overheads and incidental charges, less the accumulated depreciation of the removed facilities, less their salvage value. The cost is estimated, and a contribution equal to the estimate is made in advance.

MGE refunds the contribution as additional customers attach to the facilities unless the additional customers require a new extension. The refund will be equal to the greater of the AECA in effect at the time the contributed extension was installed or the AECA in effect at the time the meter was set.
In either case, this refund is reduced by MGE's costs incurred designing and installing the distribution facilities for the second customer. Refunds are made for up to five years after the completion of the changes to the facilities. The total refund never exceed the original total amount paid and no interest is paid on refunds.
7.0 Low-Voltage AC Network System (see NET-1)

7.1 Definitions

7.1.1 A Service Lateral in the network system is defined as the underground secondary facilities between the nearest splicing point on the underground low-voltage network system and the supply end of the customer’s service entrance facilities. The Service Laterals are installed in conduit and normally are only to serve loads that are less than 75 KW.

7.1.2 The low-voltage network Distribution System includes primary lines, ducts, manholes, conduits, transformers, and all other facilities that are part of the system. Some of these facilities may be located on the customer's premises.

7.2 Payment for Service Laterals

The customer will pay in advance $5 per foot for that part of the Service Lateral as defined above that is located between that customer's lot line and service entrance facilities.

7.3 Network Residential Metering

7.3.1 Horn-type bypass or manual-sealable lever-operated bypass for self-contained meter sockets with a switch-fuse-meter sequence for:

- Single-phase installations of 200 amperes or less (see NET-2).
- Three-phase installations of 200 amperes or less (see NET-2).
- Multiple-metering installations for two to six units (see NET-3). All apartments having more than six units should contact MGE (see NET-5).

7.3.2 Transformer-rated meter sockets and current transformers with switch-fuse-meter sequence for:

- Single-phase installations over 200 amperes (see NET-7).
- Three-phase installations over 200 amperes (see NET-6).

7.4 Network Commercial and Industrial Metering
7.4.1 Manual-sealable lever-operated bypass self-contained heavy-duty jaw-released meter sockets with a switch-fuse-meter sequence for:

- Single-phase installations of 200 amperes or less (see NET-2).
- Three-phase installations of 200 amperes or less (see NET-2).

7.4.2 Transformer-rated meter sockets and current transformers with switch-fuse-meter sequence for:

- Single-phase installations over 200 amperes for commercial and industrial customers (see NET-7).
- Three-phase installations over 200 amperes for commercial and industrial customers (see NET-6).

7.4.3 For multiple-meter installations in large commercial and industrial buildings, a main building disconnect is required (see NET-4 and NET-5).

7.5 Transformer Vaults

If the present or prospective load is 75 KW or more, MGE specifies the applicant must provide either:

A transformer vault with vehicle access constructed in accordance with all applicable codes with a minimum 16' D x 18' W x 10' H with two 32” x 32” clear manways and a 6’ x 8’ equipment-way opening for access and 3 square inches of free air ventilation per KVA of transformer capacity (see MIS-3).

In high-rise buildings, conduit extensions, space for the installation of transformers, primary cables, and associated switchgear and, upon MGE’s request, suitable space on-site outside the building for the installation of high-voltage fused disconnecting equipment.

Upon customer request, MGE will furnish transformer vault plans and specifications, including space and ventilation requirements, but the customer's architects and engineers must be responsible for structural design. Such plans must be submitted to MGE prior to construction.

7.6 New Buildings

New building construction for which Service Laterals are provided must include MGE-approved wall openings for service ducts at locations MGE specifies.
8.0 Rights and Responsibilities

8.1 Continuity of Service
MGE uses reasonable diligence to provide an uninterrupted and regular supply of service. MGE is not liable for any interruptions, deficiencies, or imperfections of service. MGE may temporarily suspend the delivery of service when necessary for the purpose of making repairs, changes, and improvements upon any part of the system.

8.2 Balanced Load
The customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.

8.3 Superposition of Electric Energy on Utility System
Where the customer's equipment couples electric energy to their electric system for equipment control, carrier current transmission, signal systems, broadcasting, communication, or any other purpose, the customer shall install equipment suitable to prevent this energy from being imposed upon or entering MGE's electric system.

8.4 Losses Due to Service Disconnection
MGE is not liable for any losses, injuries, or damages to persons or property due to disconnection of service in accordance with the disconnection rule found on page E71 of the Rules and Regulations on file with the PSCW.

8.5 Customer's Responsibility for Damage to MGE Equipment
The customer is responsible for all damage to MGE facilities or equipment caused by the customer or his permittees, including compensation for consumed energy not recorded on the meter.

8.6 Access to Customer Premises
MGE's authorized agents will have access to customer premises at all reasonable times for the purpose of reading meters, making repairs, inspections, investigations, removing MGE property, or any other purpose incident to providing service.
8.7 Abnormal Trenching Costs

The applicant shall pay in advance an amount equal to the estimated extra cost of trenching and hand digging through any area where normal plowing and trenching methods cannot be used; e.g., ledge rock, boulders, landfill, trees, heavy underbrush, watercourses, etc.

Winter charges will apply for any service and/or distribution extension installed between December 1 and March 31 unless the application for service and/or request for distribution extension is received prior to November 1 and the premise and/or site is ready for installation prior to December 1.

The premise and/or site is ready for installation when the following items are satisfied:

a. All applicable service sketches and easements signed by the customer/owner and received by MGE.

b. All applicable deposits received by MGE.

c. The entire trench route cleared and graded to within 6 inches of final grade.

d. A physical electric service entrance location installed on or in the building. This can consist of a pedestal, transocket, and a minimum of the required service entrance conduits stubbed out from the foundation wall or securely mounted on the building.

Note: A mark showing the proposed service location on the foundation or building does not qualify as ready for installation.

8.8 Installations Under and Through Private Paved and Landscaped Areas

Except for damage caused by MGE’s negligence, MGE is not liable for damage to trees, shrubs, fences, sidewalks, or other obstructions incident to the installation, repair, or maintenance of its electric facilities. The applicant is responsible for lawn and landscape restoration except as noted above.

If MGE is requested to provide additional landscaping or other services, the applicant is responsible for associated costs. Excavation and backfilling are MGE’s responsibility. The backfill will consist of the original soil when possible.

8.9 Installation of Facilities

The character, location, and method of installation of MGE-constructed facilities will be at MGE’s discretion and conform to specifications MGE prepares. Any exceptions MGE consents to will be at the customer’s expense.

8.10 Applicability of Governmental Codes

All facilities installed, whether by the customer or MGE, will comply with the appropriate provisions of the applicable governmental codes.

8.11 Extraordinary Investment

If an investment in an extension appears extraordinary to MGE, or where extensive enlargement or changes to existing distribution or other facilities required to accommodate the customer do not appear to be economically justified, MGE may require the customer to pay us that portion of the capital expenditure not economically justified by the anticipated annual revenue. Such payments will be made before construction.
In addition, MGE may require a specific contract with the customer to pay operating and maintenance expenses.
9.0 Motors and Starting Requirements

9.1 Single-Phase Motors

Split-phase motors larger than 1/2 HP capacity are not permitted for any application. The locked rotor starting current for single-phase motors or customer-owned parallel generators may not exceed the values specified in the following table:

<table>
<thead>
<tr>
<th>Size</th>
<th>Allowable Starting Current at 120 Volts</th>
<th>Allowable Starting Current at 208 Volts or 240 Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 HP</td>
<td>31 Amperes</td>
<td>15.1 Amperes</td>
</tr>
<tr>
<td>1/2 HP</td>
<td>45 Amperes</td>
<td>22.5 Amperes</td>
</tr>
<tr>
<td>3/4 HP</td>
<td>Not Allowed</td>
<td>30.5 Amperes</td>
</tr>
<tr>
<td>1 HP</td>
<td>Not Allowed</td>
<td>35 Amperes</td>
</tr>
<tr>
<td>1 1/2 HP</td>
<td>Not Allowed</td>
<td>40 Amperes</td>
</tr>
<tr>
<td>2 HP</td>
<td>Not Allowed</td>
<td>50 Amperes</td>
</tr>
<tr>
<td>3 HP</td>
<td>Not Allowed</td>
<td>70 Amperes</td>
</tr>
<tr>
<td>5 HP</td>
<td>Not Allowed</td>
<td>100 Amperes</td>
</tr>
<tr>
<td>7 1/2 HP</td>
<td>Not Allowed</td>
<td>115 Amperes</td>
</tr>
</tbody>
</table>

Note: Window- or room-type air conditioners and portable appliances shall not have starting currents in excess of four times the rated input current.

9.2 Three-Phase Equipment

Construct all three-phase equipment for operation at the voltage available in the location where it is to be used. Contact MGE with any questions about available service, and be sure to notify MGE in advance of all proposed additions of three-phase equipment to ensure an adequate supply of service.

9.3 Three-Phase Motors
Limit the starting current for three-phase motors and customer-owned parallel generators to the values given in the table below by suitable starting devices or motor design. These limitations must be met during all stages of the motor start and running cycles.

Construct all motors and parallel generators larger than 100 HP to maintain a power factor in excess of ninety-two (92) percent at ninety (90) percent of full load or output.

Supply equipment (such as single-phase welders, electric furnaces, motors, parallel generators, and other equipment) which causes frequent variations in current demand which may result in light flicker must be supplied from independent service equipment, including service outlet and meter.

<table>
<thead>
<tr>
<th>Size</th>
<th>Voltage</th>
<th>Maximum Permissible Starting Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 HP</td>
<td>240</td>
<td>82 Amperes/Motor</td>
</tr>
<tr>
<td>7 1/2 HP</td>
<td>240</td>
<td>110 Amperes/Motor</td>
</tr>
<tr>
<td>10 HP</td>
<td>240</td>
<td>135 Amperes/Motor</td>
</tr>
<tr>
<td>15 HP</td>
<td>240</td>
<td>189 Amperes/Motor</td>
</tr>
<tr>
<td>20 HP</td>
<td>240</td>
<td>240 Amperes/Motor</td>
</tr>
<tr>
<td>25 HP</td>
<td>240</td>
<td>291 Amperes/Motor</td>
</tr>
<tr>
<td>30 HP</td>
<td>240</td>
<td>345 Amperes/Motor</td>
</tr>
<tr>
<td>35 HP</td>
<td>240</td>
<td>354 Amperes/Motor</td>
</tr>
<tr>
<td>40 HP</td>
<td>240</td>
<td>365 Amperes/Motor</td>
</tr>
<tr>
<td>50 HP and Larger</td>
<td>240</td>
<td>8 Amperes/HP</td>
</tr>
</tbody>
</table>

The maximum permissible starting current for motors wound for other voltages shall be the starting currents listed above divided by ratio or other voltage.

240 V
10.0 Power Factor Correction Rule

For non-incandescent lighting, the customer is responsible to maintain a power factor to a level of at least:

Ninety (90) percent lagging for illumination or decorative purposes.

Eighty-five (85) percent lagging for advertising purposes, except that no correction is required for any complete sign supplied from a single auxiliary transformer rated at 225 volt amperes or less.

Commercial and industrial customers must maintain a power factor on peak of not less than eighty-five (85) percent or be subject to a penalty as dictated by filed rates.

The power factor is determined by the wattmeter-voltmeter-ammeter method.
11.0 Emergency Electric Service

In commercial or network installations where code requires an emergency service connection on the line side of the building main disconnect (as with emergency lighting or fire pumps), MGE will provide a separate service for this. Metering must be according to MGE-approved metering guidelines.
12.0 Customer-Owned Optional Standby Electric Generating Equipment

The purpose of optional standby electric generating equipment is to provide an alternate source of electric power for farms and commercial facilities during power outages to minimize inconvenience or product damage. A standby generator must be connected to the customer's electric system through an approved double-throw break-before-make disconnect switch (see MIS-8 and MIS-9). This system will be electrically and mechanically interconnected so the customer's generation cannot feed back into MGE's system.
13.0 Customer-Owned Parallel Electric Generating Equipment

13.1 Application and Contract

Before interconnecting a generating system with the MGE system, MGE must receive and approve an application and a contract specifying technical connection and operating aspects for the parallel generating facility. MGE will follow the guidelines of PSC 119 for this review.

13.2 Lockable Load Break Disconnect Switch

MGE requires a lockable load break disconnect switch between generators and the MGE system. A fused cutout switch may be substituted in installations interconnected at greater than 600 volts. Switches must be accessible so MGE can isolate the generating facility from the MGE system when necessary.

13.3 Separate Distribution Transformers

MGE requires separate distribution transformers for generating facilities which may threaten safety or interfere with other customers' services. This should not be necessary for induction-type generators with capacities of 5 KW or less or generating units of 10 KW or less which utilize line-commutated inverters. Ordinarily, single-phase generators should be limited to a capacity of 10 KW or less.

13.4 Automatic Isolation

Each generating facility must have a system for automatically isolating the generator upon loss of the MGE supply, unless MGE wants local generation to supply isolated load. For synchronous and induction generators, this protection ordinarily consists of overcurrent protection, fuse or circuit breaker, plus a voltage- or frequency-controlled contactor to automatically disconnect the unit whenever its output voltage or frequency drifts outside predetermined limits, such as plus or minus ten (10) percent of the rated values. Other suitable protective systems may be accepted.

13.5 Disconnection Upon Request

Customers must disconnect the parallel generation upon request. MGE may isolate the generating facility:
• For maintenance or repair of MGE facilities.
• During system emergencies.
• When the generating facility is operating in a hazardous manner or affects service to other customers or nearby communication systems or circuits.

13.6 Access

Generating facilities must be accessible to MGE personnel at reasonable times for testing isolation and protection equipment, evaluating power quality, and isolating sources of electric service or communication systems problems.

13.7 Rights and Responsibilities

The owner of a generating facility is responsible for protecting owner-installed equipment and adherence to all applicable codes. Certain generating equipment, such as that utilizing line-commutated inverters, sometimes requires an isolation transformer.

A generating facility’s power output must be compatible with normal electrical service and not cause that service to fall outside the prescribed limits of PSCW rules and other standard limitations.

A generating facility must not affect the service or equipment of other customers or produce undesirable levels of harmonics in the MGE power supply.

The owner of a generating facility that is or proposes to be interconnected with the MGE system may appeal to the PSCW if any of MGE's requirements are considered excessive or unreasonable. Such an appeal will be reviewed and the customer notified of the PSCW's determination.
14.0 Charges for Overhead Drops and Underground Service Laterals

14.1 Temporary Service

MGE will charge $72 for providing a 120/240-volt, single-phase temporary service up to 100 amperes for construction purposes at a location selected by MGE where facilities currently exist. The service head must be located on a satisfactory temporary support provided by the applicant. This support must be located so that wires will not have to be spliced when moved to the permanent location and provide the clearance required by state code (see MIS-5 and MIS-6). For any other location, voltage, or load selected by the applicant, the estimated cost of installing and removing the distribution facilities for temporary service will be paid in advance by the applicant. All temporaries which are larger than 100 amperes or are greater than 277 volts will follow MGE’s commercial service rules.

14.2 Permanent Service

No charge will be made for permanent overhead Service Drops and underground Service Laterals meeting the aforementioned definitions and all MGE rules and applicable codes unless there is extraordinary investment or abnormal trenching costs. The customer will pay the portion of the extraordinary investment and abnormal trenching above the cost of a normal service as determined by MGE.

14.3 Upgrade of Service Facilities

No charge will be made for upgrading a Service Drop or Lateral with a larger Service Drop or Lateral.

MGE will require a contribution from a customer requesting to have an overhead Service Drop upgraded to an underground Service Lateral. The contribution will be equal to the cost of the underground Service Lateral, less the cost of an equivalent overhead Service Drop.
However, if the change is a result of a substantial increase in consumption or extensive building modifications, then the change will be treated as a request from a new customer for the purpose of calculating the contribution.
## ELECTRICAL CONTRACTORS HANDBOOK (ECH)

### Chapter
Electric Rules and Regulations

### Subject
MGE Electric Distribution Engineering Department Directory

**Effective:** 09/23/2020  
**Revision Number:** 2

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R Due to the number of changes throughout this section, it should be read in its entirety.

15.0 MGE Electric Distribution Engineering Department Directory (see next page)
## Customer Service Representative Directory - Electric

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diggers Hotline</strong></td>
<td>800-242-8511 or 811</td>
</tr>
<tr>
<td><strong>Easements</strong></td>
<td>Adam Gile 252-7132</td>
</tr>
<tr>
<td><strong>Electromagnetic Field Inquiries</strong></td>
<td>Marty Jacobi 252-4785</td>
</tr>
<tr>
<td><strong>Emergency</strong></td>
<td>252-7111 or 800-245-1123</td>
</tr>
<tr>
<td><strong>Engineering, Electric Distribution</strong></td>
<td>Nick Schroeder 252-5651</td>
</tr>
<tr>
<td><strong>Engineering, Electric Service</strong></td>
<td>Chris Erickson 252-5670</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td>252-7222 or 800-245-1125</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>252-5697</td>
</tr>
<tr>
<td><strong>Meter Sealing</strong></td>
<td>Electric Meter Shop 252-4721</td>
</tr>
<tr>
<td><strong>Open Current Transformer Cabinets</strong></td>
<td>Electric Meter Shop 252-4721</td>
</tr>
<tr>
<td><strong>Metering, Pickup</strong></td>
<td>Electric Meter Shop 252-4721</td>
</tr>
<tr>
<td><strong>Operations and Construction</strong></td>
<td>Builders Line 252-7373</td>
</tr>
<tr>
<td><strong>Plats, Residential or Commercial</strong></td>
<td>Mark Gauger 252-1370</td>
</tr>
<tr>
<td><strong>Lights, Private Light Engineering</strong></td>
<td>Keith VerKullen 252-7943</td>
</tr>
<tr>
<td><strong>Lights, Streetlight Engineering</strong></td>
<td>Tony Sanfratello 252-7379</td>
</tr>
<tr>
<td><strong>Outages, Customer Requested</strong></td>
<td>Builders Line 252-7373</td>
</tr>
<tr>
<td><strong>Relocation of Distribution Facilities</strong></td>
<td>David Tyszka 252-7193</td>
</tr>
<tr>
<td><strong>Relocation of Overhead and Underground Service Facilities</strong></td>
<td>Tim Cole 252-4709</td>
</tr>
<tr>
<td><strong>Road Improvement Projects</strong></td>
<td>Tony Sanfratello 252-7379</td>
</tr>
<tr>
<td><strong>Service, Commercial</strong></td>
<td>Brian Bigge (west side) 252-7338 Michael Beeler (east side) 252-7087</td>
</tr>
<tr>
<td><strong>Service, Multifamily (Apartments)</strong></td>
<td>Brian Bigge (west side) 252-7338 Michael Beeler (east side) 252-7087</td>
</tr>
<tr>
<td><strong>Service, Residential New Single Family</strong></td>
<td>New Service Line 252-7373 Rob Bartle (west side) 252-7946 Kevin Fahey (east side) 252-4732</td>
</tr>
<tr>
<td><strong>Service, Residential Overhead Upgrades and Conversions From Overhead to Underground</strong></td>
<td>Hunter Stewart (west side) 252-7949 Keith VerKullen (east side) 252-7943</td>
</tr>
<tr>
<td><strong>Service, Rural Distribution Extensions</strong></td>
<td>Mark Gauger 252-1570</td>
</tr>
<tr>
<td><strong>Service Coordinator, Distribution and Service (Service Installation Schedule)</strong></td>
<td>Builders Line 252-7373 Trish Day 252-4772 Rob Bartle (west side) 252-7946 Kevin Fahey (east side) 252-4732</td>
</tr>
<tr>
<td><strong>Stray Voltage</strong></td>
<td>Marty Jacobi 252-4785</td>
</tr>
<tr>
<td><strong>Voltage Complaints</strong></td>
<td>Marty Jacobi 252-4785</td>
</tr>
</tbody>
</table>
R Figures 16-46 (Table 6), 16-47 (Table 7), and 16-48 (Table 8) were obsoleted effective 09/14/2020. No content changes were made to this section.

16.0 Service Details

This section includes detail drawings of the various electric services MGE provides. It also details the customer requirements for installation. Contact MGE Engineering for final approval or with questions.

<table>
<thead>
<tr>
<th>Commercial Services</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Service/Overhead Service</td>
<td>100 amperes or less, single-phase or three-phase</td>
</tr>
<tr>
<td>Underground Service/Overhead Service</td>
<td>101 to 200 amperes, single-phase or three-phase</td>
</tr>
<tr>
<td>Underground Service/Overhead Service</td>
<td>201 to 600 amperes, 120/240 volt, single-phase, three-wire</td>
</tr>
<tr>
<td>Underground Service/Overhead Service</td>
<td>201 to 600 amperes, 120/208 volt, single-phase, three-wire</td>
</tr>
<tr>
<td>Underground Service/Overhead Service</td>
<td>Greater than 200 amperes, 240 volt, three-phase, three-wire</td>
</tr>
<tr>
<td>Overhead Service</td>
<td>201 to 400 amperes, three-phase, four-wire</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Greater than 200 amperes, three-phase, four-wire</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Multiple meters with various service sizes</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Multiple metering, 200 amperes/pos. single-phase or three-phase</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Multiple metering, 100 amperes/pos. single-phase or three-phase</td>
</tr>
<tr>
<td>Transformer Cabinet</td>
<td>400 to 1,600 amperes, three-phase, four-wire</td>
</tr>
<tr>
<td>Transformer Cabinet</td>
<td>400 to 600 amperes, single-phase, three-wire</td>
</tr>
<tr>
<td>Switchboard</td>
<td>Customer-owned secondary switchboard</td>
</tr>
<tr>
<td>Primary Metering Switchgear</td>
<td>One-line diagram customer-owned</td>
</tr>
</tbody>
</table>
General Notes for Service Entrance Equipment

The number of service entrance conduits and minimum gutter size for services requiring a main disconnect switch are as follows:

<table>
<thead>
<tr>
<th>Main Size</th>
<th>No. of Service Entrance Conduits</th>
<th>Minimum Gutter Size (Larger May Be Required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200A</td>
<td>One 4-inch</td>
<td>8” x 8” x 24”</td>
</tr>
<tr>
<td>400A</td>
<td>One 4-inch</td>
<td>12” x 12” x 24”</td>
</tr>
<tr>
<td>600A</td>
<td>Two 4-inch</td>
<td>12” x 12” x 24”</td>
</tr>
<tr>
<td>800A</td>
<td>Two 4-inch</td>
<td>12” x 12” x 24”</td>
</tr>
<tr>
<td>1,000A</td>
<td>Three 4-inch</td>
<td>12” x 12” x 36”</td>
</tr>
<tr>
<td>1,200A</td>
<td>Three 4-inch</td>
<td>12” x 12” x 36”</td>
</tr>
<tr>
<td>1,600A</td>
<td>Four 4-inch</td>
<td>16” x 16” x 36”</td>
</tr>
<tr>
<td>2,000A</td>
<td>Five 4-inch</td>
<td>16” x 16” x 36”</td>
</tr>
<tr>
<td>Above 2,000A</td>
<td>Contact MGE Engineering</td>
<td>Contact MGE Engineering</td>
</tr>
</tbody>
</table>

- A code- and MGE-approved transition or conduit is required between the gutter and main switch. (See Table 7.)
- Use of other gutter/transition arrangements meeting proper cable-bending radius must be approved by MGE prior to installation.
- Conduits may enter the bottom of a switch if a bottom-fed switch is utilized, but a minimum distance of 24 inches must be maintained from the bottom of the switch to the line-side termination lugs.
- All switchboard installations and meter stacks must be approved by MGE.
- Gutters containing unmetered conductors shall be sealable.
- Current transformer cabinets must have provisions for padlocking.
- Where service entrance conduits are subject to physical damage, the conduits shall be Schedule 80 rigid nonmetallic or metal conduit.
- Protective posts are required if equipment is subject to vehicular traffic.
- Call Diggers Hotline to locate underground utilities prior to driving ground rods or stubbing service entrance conduits.
- See Miscellaneous-2 for clearance guidelines between electric and gas meters.
- See Miscellaneous-1A and 1B for overhead clearance guidelines.
- Any 277/480-volt service will require a switch-fuse-meter sequence.
### Residential Services

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<th>Description</th>
<th>See Page</th>
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<td>Pedestal-type meter socket 200 amperes or less</td>
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</tr>
<tr>
<td>Underground Service</td>
<td>200 amperes or less</td>
<td>RES-2</td>
</tr>
<tr>
<td>Overhead Service</td>
<td>Attachment to building 200 amperes or less</td>
<td>RES-3</td>
</tr>
<tr>
<td>Overhead Service</td>
<td>Attachment through the roof 200 amperes or less</td>
<td>RES-4</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Single-phase, 320 amperes</td>
<td>RES-5</td>
</tr>
<tr>
<td>Underground Service</td>
<td>Single meter installation 400 to 600 amperes</td>
<td>RES-6</td>
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<tr>
<td>Underground Service</td>
<td>2 to 6 meters 200 amperes or less per position</td>
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<td>Underground Service</td>
<td>7 meters or more 200 amperes or less per position</td>
<td>RES-8</td>
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<tr>
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<td>Electric Water Heater</td>
<td>One-line diagram</td>
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<td></td>
<td></td>
<td>RES-9B</td>
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</table>

### Network Services

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<th>Description</th>
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<td>Low-Voltage Network Map</td>
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<td>Residential/Commercial</td>
<td>200 amperes or less, single-phase or three-phase</td>
<td>NET-2</td>
</tr>
<tr>
<td>Outdoor Residential</td>
<td>Multiple meters, 200 amperes or less per position, single-phase or three-phase</td>
<td>NET-3</td>
</tr>
<tr>
<td>Commercial</td>
<td>Multiple meters, 200 amperes or less per position, single-phase or three-phase</td>
<td>NET-4</td>
</tr>
<tr>
<td>Residential Apartment</td>
<td>Meter stack, 200 amperes or less per position, single-phase or three-phase</td>
<td>NET-5</td>
</tr>
<tr>
<td>Residential/Commercial</td>
<td>Single meter, 200 amperes or larger, three-phase</td>
<td>NET-6</td>
</tr>
<tr>
<td>Residential/Commercial</td>
<td>Single meter, 201 to 600 amperes, single-phase</td>
<td>NET-7</td>
</tr>
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### Miscellaneous Drawings

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<td>MIS-1A</td>
</tr>
<tr>
<td>Overhead Clearance Guidelines - Drawings</td>
<td>MIS-1B</td>
</tr>
<tr>
<td>Clearance Requirements Between Gas Meters and Electric Meters</td>
<td>MIS-2</td>
</tr>
<tr>
<td>Typical Below-Grade Transformer Vault</td>
<td>MIS-3</td>
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<tr>
<td>Typical Transformer Enclosure</td>
<td>MIS-4</td>
</tr>
<tr>
<td>Customer-Owned Overhead Temporary Service</td>
<td>MIS-5</td>
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<td>Customer-Owned Underground Temporary Service</td>
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<td>Farm Pole-Top Metering Installation</td>
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<td>Typical Direct-Metering Wiring Diagrams</td>
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Effective Date: 03/16/2015
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16.0 - Service Details
Figure 16-1 - COM-1

Double click on the icon and open the document.

COM-1.pdf
MGE Will Furnish:
1. Service conductors.
2. Electric meters.

The Customer Will Furnish:
3. MGE-approved 200-ampere underground meter socket with lever by pass and jaw release. See Table 3.
   - For 120/240 volt, single-phase, three-wire, use four-terminal socket, or for a pedestal-type socket, use a five-terminal.
   - For 120/208-volt, single-phase, three-wire or 240-volt delta, three-phase, three-wire, use use five-terminal socket with 5th terminal at six or nine o'clock.
   - For 120/208-volt, three-phase, four-wire, use seven-terminal socket.
   - See Drawing MIS-9 for meter wiring schematic.
4. PVC conduit for service entrance conductors, 2" for single-phase, 3" for three-phase.
5. Conduit and wire to main distribution panel.
6. Ground in accordance with applicable electrical codes.
7. Pipe straps as required.
8. Slip coupling.

Notes:
*480V services require switch-fuse-meter sequence, SEE COM-2
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-2 - COM-2

Double click on the icon and open the document.

COM-2.pdf
MGE Will Furnish:
1. Service conductors.
2. Electric meters.

The Customer Will Furnish:
3. Main disconnect switch, fused at 200 amperes or less, with current-limiting fusing, if necessary.
4. MGE- and code-approved transition between gutter and main switch or conduit. See Table 7
5. Service entrance conduit, minimum 4" PVC.
7. MGE-approved, heavy-duty meter socket with lever bypass and jaw release. See service equipment, Table 3.
   - For 120/240-volt, single-phase, three-wire, use four-terminal socket.
   - For 120/208-volt, single-phase, three-wire or 240-volt delta, three-phase, three-wire, use five-terminal socket with 5th terminal at six or nine o'clock.
   - For 120/208-volt or 277/480-volt, three-phase, four-wire, use seven-terminal socket.
   - See Drawing MIS-9 for meter wiring schematics.
8. Conduit and wiring to customer's main distribution panel.
9. Ground in accordance with applicable electrical codes.
10. Pipe straps as required.

NOTES:
*For overhead applications, service conduit should be installed into top of main disconnect.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-3 - COM-3

Double click on the icon and open the document.

COM-3.pdf
MGE Will Furnish:
1. Service conductors.
2. Electric meter and wiring to test switch.
3. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
3. Main disconnect switch with current-limiting fusing, if necessary.
5. MGE- and code-approved transition between gutter and main switch or conduit. See Table 7
6. Service entrance conduit(s) as specified on pages C2 and C3.
7. Gutter as specified on pages C2 and C3.
8. Current transformer cabinet with provisions for padlocking, minimum size 18"x18"x9" deep, or approved MGE transformer cabinet, See COM-12.
9. MGE-approved transformer-rated meter socket.
10. One-inch rigid conduit for meter wiring. See Table 3A.
11. Conduit and wire to customer's main distribution panel.
12. Ground in accordance with applicable electrical codes.

NOTES:
*For overhead applications, service conduit should be installed into top of main disconnect.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-4 - COM-4

Double click on the icon and open the document.

COM-4.pdf
MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
5. Main disconnect switch with current-limiting fusing, if necessary.
6. MGE- and code-approved transition between gutter and main switch or conduit. See Table 7
7. Service entrance conduit(s) as specified on pages C2 and C3.
8. Gutter as specified on pages C2 and C3. The gutter can be installed horizontally or vertically.
9. Current transformer cabinet with provisions for padlocking, minimum size 24"x24"x9" deep, or approved MGE transformer cabinet, See COM-12
10. MGE-approved transformer-rated meter socket. See Table 3A
11. One-inch rigid conduit for meter wiring.
12. Conduit and wire to customer's distribution panel.
13. Ground in accordance with applicable electrical codes.
14. Pipe straps as required.
15. Slip coupling.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-5 - COM-5

Double click on the icon and open the document.

COM-5.pdf
FOR REFERENCE NOT FOR CONSTRUCTION

COMMERCIAL UNDERGROUND SERVICE  
240-VOLT, THREE-PHASE, THREE-WIRE 
GREATER THAN 200 AMPERES  
SEQUENCE: SWITCH-FUSE-METER

MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
5. Main disconnect switch with current-limiting fusing, if necessary.
6. MGE- and code-approved transition between gutter and main switch. See Table 7
7. Service entrance conduit(s) as specified on pages C2 and C3.
8. Gutter as specified on pages C2 and C3 or conduit.
9. Current transformer cabinet with provisions for padlocking, minimum size 24"x24"x9" deep or MGE approved transformer cabinet, see COM-11.
10. MGE-approved transformer-rated meter socket. See Table 3A
11. One-inch rigid conduit for meter wiring.
12. Conduit and wire to customer's distribution panel.
13. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-6 - COM-6

Double click on the icon and open the document.

COM-6.pdf
MGE Will Furnish:
1. Overhead service conductors.
2. Compression-type connectors. MGE to make final connection.
3. Meter test switch, installed by customer.
4. Electric meter and wiring to test switch.
5. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
6. Main disconnect switch with current-limiting fusing, if necessary.
7. Current transformer cabinet with provisions for padlocking, minimum size 24"x24"x9" deep or MGE approval transformer cabinet, See COM-11.
8. MGE-approved transformer-rated meter socket. See Table 3A
9. One-inch rigid conduit for meter wiring.
10. Conduit and wire to customer's distribution panel.
11. Ground in accordance with applicable electrical codes.
12. Riser pipe and weatherhead in accordance with applicable codes. Rigid steel riser pipe is required if attachment point is on the riser pipe.
13. Service conductors to main switch. Leave 36-inch-long wire leads for connection to MGE service drop.
14. Point of attachment-suitable insulated spool and bracket to support service drop.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-7 - COM-7

Double click on the icon and open the document.

COM-7.pdf
COM-7
COMMERCIAL UNDERGROUND SERVICE
THREE-PHASE, FOUR-WIRE
GREATER THAN 200 AMPERES
SEQUENCE: SWITCH-FUSE-METER

MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
5. Main disconnect switch with current-limiting fusing, if necessary.
6. MGE- and code-approved transition between gutter and main switch or conduit. See Table 7
7. Service entrance conduit(s) as specified on pages C2 and C3.
9. Current transformer cabinet with provisions for padlocking. Services 1,200 amperes or less, minimum size 36"x36"x9" deep; for services larger than 1,200 amperes, 36"x36"x12", or MGE approved transformer cabinet, See COM-11.
10. MGE-approved transformer-rated meter socket. See Table 3A
11. One-inch rigid conduit for meter wiring.
12. Conduit and wire to customer's distribution panel.
13. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-8 - COM-8

Double click on the icon and open the document.

COM-8.pdf
MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch, if applicable.
4. "Window"-type current transformers, installed by customer.

The Customer Will Furnish:
5. Main building disconnect switch with current-limiting fusing, if necessary.
6. Service conduits, gutter, and approved transition. See pages C2 and C3 for specified conduit and gutter sizes. See Table 7 for approved transition or conduit.
7. Sealable raceway for unmetered wire only.
8. Main switch for service greater than 200 amperes. Sequence: Switch-Fuse-Meter.
9. Current transformer cabinet with provisions for padlocking. Services 1,200 amperes or less, minimum size 36"x36"x9" deep; for services larger than 1,200 amperes, 36"x36"x12" or MGE approved transformer cabinet. See COM-11.
10. MGE-approved transformer-rated meter socket. See Table 3A
11. One-inch rigid conduit for meter wiring.
12. Conduit and wire to customer’s distribution panel that is greater than 200 amperes.
13. MGE-approved, heavy-duty meter socket with lever bypass and jaw release.
14. Conduit and wire to customer’s distribution panel of 200 amperes or less. See Table 3A
15. Ground in accordance with applicable electrical codes.

*Note: All 480 Volt meters must have their own Switch/Fuse/Meter sequence.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-9 - COM-9

Double click on the icon and open the document.
MGE Will Furnish:
1. Service conductors.
2. Electric meters.

The Customer Will Furnish:
3. Prebussed main building disconnect switch with current-limiting fusing, if necessary.
4. Service conduit(s) as specified on pages C2 and C3.
5. Gutter and MGE- and code-approved transition, utilize in a top-fed main disconnect application. See pages C2 and C3 for specified gutter sizes. See table 7 for approved transition or conduit.
6. Prebussed meter stack. Meter stacks to be approved by MGE on a case-by-case basis.
7. Ground in accordance with applicable electrical codes.
8. If bottom feed disconnect is used, a minimum distance of 24" must be maintained from the line side lugs to bottom of cabinet.

NOTES:
* The maximum single phase serves size is 600A.
* All meters must be labeled to identify the area or apartment that is serves.
* On 120/208 volt three phase services, the customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-10 - COM-10

Double click on the icon and open the document.

COM-10.pdf
MGE Will Furnish:
1. Service conductors, contact MGE for size and number of raceways.
2. Electric meters.

The Customer Will Furnish:
3. Prebussed main disconnect switch and meter stack furnished by customer.

Notes:
* All service and meter configurations must be approved by MGE.
* Meter sockets require use of an approved manual-type bypass.
* Maximum single phase service size is 600 amps.
* Each meter socket must be marked to identify the area that it serves.
* See pages C2 and C3 for additional notes.
* If bottom feed disconnect is used, a minimum distance of 24" must be maintained from the line side lugs to the bottom of cabinet.
* On 120/208 volt three phase services, the customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-11 - COM-11

Double click on the icon and open the document.

COM-11.pdf
MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. Bar-type current transformer, installed by customer.

The Customer Will Furnish:
5. MGE-approved prebussed-type enclosure with the proper number of termination lugs sized to accept 4/0 through 500 MCM AL/CU. See Table 4
6. MGE-approved transformer-rated meter socket. See Table 3A
7. One-inch rigid conduit for meter wiring.
8. MGE-approved underground service raceway(s). See Table 8
   - A four-inch service conduit(s) as specified on pages C2 and C3, may be substituted for the raceway. Slip couplings are required for use with conduits.
9. Conduit and wire to main distribution panel.
   - MGE conductors enter the bottom of the cabinet, the customer's conductors must exit the cabinet above the load-side termination lugs.
10. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0

16.0 - Service Details
Figure 16-12 - COM-12

Double click on the icon and open the document.

COM-12.pdf
MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. Bar-type current transformer, installed by customer.

The Customer Will Furnish:
5. MGE-approved prebussed-type enclosure with the proper number of termination lugs sized to accept 4/0 through 500 MCM AL/CU. See Table 4
6. MGE-approved transformer-rated meter socket. See Table 3A
7. One-inch rigid conduit for meter wiring.
8. MGE-approved underground service raceway. See Table 8
   - A four-inch service conduit(s) as specified on pages C2 and C3, may be substituted for the raceway. Slip couplings are required for use with conduit.
9. Conduit and wire to main distribution panel.
   - MGE conductors enter the bottom of the cabinet, the customer's conductors must exit the cabinet above the load-side termination lugs.
10. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-13 - COM-13

Double click on the icon and open the document.

COM-13.pdf
The switchboard shown is typical. Each switchboard will be treated on an individual basis. Consult MGE for approval of each switchboard on a case-by-case basis.

MGE Will Furnish:

- "Window"-type current transformers installed by the customer or switchboard manufacturer.
  The current transformer compartment must be sized to accommodate standard MGE current transformers. Contact MGE metering for specific information.
- Service conductors to main switch.

The Customer Will Furnish:

1. Customer-owned secondary switchboard with main disconnect switch, main distribution panel, metering.
2. One-inch rigid conduit for metering wires from meter socket to switchboard. Use non-metallic conduit between CT compartment and edge of switchboard.
3. MGE-approved transformer-rated meter socket. See Table 3A
Effective Date: 03/16/2015  
Revision No.: 0  
16.0 - Service Details  
Figure 16-14 - COM-14

Double click on the icon and open the document.

COM-14.pdf
MGE Will Furnish:

1. High-voltage (4.16 kV or 13.8 kV) service conductors.
2. Metering equipment (not shown).
3. Bar-type current transformers, installed by customer or switchgear manufacturer.
4. Potential transformers, installed by customer or switchgear manufacturer.

The Customer Will Furnish:

5. Primary metering switchgear, as approved by MGE.
6. Meter equipment enclosure, as specified by MGE. See Table 3A
7. Main service fusing, as approved by MGE.
8. Fusing and primary cable to transformers.

NOTES:
*An optional MGE approved pad-mounted switchgear can be purchased from MGE for this application. See MGE construction engineering for details.
RES-1
RESIDENTIAL PEDESTAL-TYPE
UNDERGROUND SERVICE
200 AMPERES OR LESS
SEQUENCE: METER-SWITCH-FUSE

MGE Will Furnish:
1. Service conductors.
2. Electric meter.

The Customer Will Furnish:
3. MGE-approved, pedestal-type meter socket with horn bypass. See Table 1
4. Mechanical-type lugs.
5. Ground in accordance with applicable electrical codes.

NOTE:
*Protective posts will be required if subject to vehicular traffic.
**Effective Date:** 03/16/2015  
**Revision No.:** 0  
**16.0 - Service Details**  
**Figure 16-16 - RES-2**

Double click on the icon and open the document.

![PDF](RES-2.pdf)
MGE Will Furnish:

1. Service conductors.
2. Electric meter.

The Customer Will Furnish:

3. MGE-approved meter socket with horn bypass. See Table 1
4. Two-inch PVC conduit for service conductors.
5. Conduit and wire to main distribution panel.
6. Ground in accordance with applicable electrical codes.
7. Pipe straps as required.
8. PVC slip coupling.

NOTE:
*Protective posts and/or rigid service conduit will be required if subject to vehicular traffic.
Double click on the icon and open the document.

RES-3.pdf
RESIDENTIAL OVERHEAD SERVICE ATTACHMENT TO BUILDING
200 AMPERES OR LESS
SEQUENCE: METER-SWITCH-FUSE

MGE Will Furnish:
1. Overhead service conductors.
2. Compression-type connectors. MGE to make final connection.
3. Electric meter.

The Customer Will Furnish:
4. Point of Attachment—suitable insulated spool and bracket to support service drop conductors.
5. Service riser, conductors, and weatherhead. Leave 36-inch-long wire leads for connection to MGE service drop.
6. MGE-approved, meter socket with horn bypass. See Table 1
7. Conduit and wire to main distribution panel.
8. Ground in accordance with applicable electrical codes.

NOTE:
*Protective posts and/or rigid service conduit will be required if subject to vehicular traffic.
RES-4
RESIDENTIAL OVERHEAD SERVICE ATTACHMENT THROUGH THE ROOF
200 AMPERES OR LESS
SEQUENCE: METER-SWITCH-FUSE

MGE Will Furnish:
1. Overhead service conductors.
2. Compression-type connectors. MGE to make final connection.
3. Electric meter.

The Customer Will Furnish:
4. Point of Attachment—suitable insulated spool and bracket to support service drop conductors.
5. Service riser, conductors, and weatherhead, minimum two-rigid conduit.
   Leave 36-inch-long wire leads for connection to MGE service.
6. MGE-approved meter socket with horn bypass. See Table 1
7. Conduit and wire to main distribution panel.
8. Ground in accordance with applicable electrical codes.

NOTE:
*Customer must install guy if service drop attachment is higher than 48" above roof.
*Protective posts and/or rigid service conduit will be required if subject to vehicular traffic.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-19 - RES-5

Double click on the icon and open the document.

RES-5.pdf
MGE Will Furnish:
1. Service conductors.
2. Electric meter.

The Customer Will Furnish:
3. MGE-approved, pedestal-type meter socket with horn bypass. See Table 1
4. Mechanical-type lugs.
5. Ground in accordance with applicable electrical codes.

NOTE:
*Protective posts and/or rigid service conduit will be required if subject to vehicular traffic.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-20 - RES-6

Double click on the icon and open the document.

RES-6.pdf
RESIDENTIAL UNDERGROUND SERVICE
400 TO 600 AMPERES
SEQUENCE: METER-SWITCH-FUSE
(Not to Be Used in the Low-voltage Network Area)

MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. Bar-type current transformer, installed by customer.

The Customer Will Furnish:
5. MGE-approved prebussed-type enclosure with the proper number of termination lugs sized to accept 4/0 through 500 MCM AL/CU. See Table 4
6. MGE-approved transformer-rated meter socket. See Table 3A
7. One-inch rigid conduit for meter wiring.
8. MGE-approved underground service raceway See Table 8
   - Four-inch service conduit(s) may be substituted for the raceway. A slip coupling is required for conduit installation
9. Conduit and wire to main distribution panel.
   - MGE conductors enter into the cabinet from the bottom, the customer's conductors must exit the cabinet above the line-side termination lugs.
10. Ground in accordance with applicable electrical codes.

NOTE:
*Transsocket and meter must be placed outdoors in a residential application.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-21 - RES-7

Double click on the icon and open the document.

RES-7.pdf
RESIDENTIAL MULTIPLE METER UNDERGROUND SERVICE
2 TO 6 METERS,
200 AMPERES OR LESS PER POSITION
SEQUENCE: METER-SWITCH-FUSE

MGE Will Furnish:
1. Service conductors.
2. Electric meters.

The Customer Will Furnish:
3. MGE-approved, 2- to 6-position meter socket. See Table 2 and 2A
4. Four-inch service conduit.
5. Ground in accordance with applicable electrical codes.
6. Slip coupling

NOTES:
*Each meter socket must be marked to identify the area or apartment it serves.
*Meter sockets require use of an approved bypass. Each socket shall have a separate, sealable cover plate which is removable without disturbing other cover plates.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-22 - RES-8

Double click on the icon and open the document.

RES-8.pdf
MGE Will Furnish:
1. Service conductor, contact MGE for size and number of raceways.
2. Electric meters.

The Customer Will Furnish:
3. Prebussed main disconnect switch and meter stack.
   All configuration must be approved by MGE on a case by case basis.
4. Spacer section may be required to utilize horn type by pass.
5. Four inch service conduit. Contact MGE for number required.

NOTE:
*The maximum single-phase main disconnect size is 600 amps.
*Each meter socket must be marked to identify the area or apartment that it serves.
*Meter sockets require use of an approved bypass. Each socket shall have a separete, sealable cover plate which is removable without disturbing other cover plates.
*On 120/208 volt three phase services, the customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-23 - RES-9

Double click on the icon and open the document.

RES-9.pdf
RES-9

RESIDENTIAL CONTROLLED ELECTRIC WATER HEATER
200 AMPERES OR LESS PER POSITION
SEQUENCE: METER-SWITCH-FUSE

MGE Will Furnish:
1. Service conductors.
2. House meter.
3. Off-peak meter with time switch built in.

The Customer Will Furnish:
4. MGE-approved duplex meter socket. See Table 2
5. PVC conduit, two-inch.
6. Conduit and wire to main distribution panel.
7. Conduit and wire to electric hot water heater.
8. Ground in accordance with applicable electrical codes.
9. Pipe straps as required.
10. Slip coupling.

NOTE:
*See drawing RES-9A and 9B for wiring drawings.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-24 - RES-9A

Double click on the icon and open the document.

RES-9A.pdf
RES-9A
RESIDENTIAL CONTROLLED ELECTRIC WATER HEATER 200 AMPERES OR LESS

1. House meter.
2. Off-peak meter and time switch.
3. Water heater service switch, maximum 30-ampere fuse or breaker.
4. Main distribution panel.

NOTE:
*See drawing MIS_9 for typical installation of metering equipment.
*The sum of all the elements on at any time shall not exceed 5,500 watts.
*See drawing RES-9B for alternate installation using split elements.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-25 - RES-9B

Double click on the icon and open the document.
1. House meter.
2. Off-peak meter and time switch.
3. Off-peak water heater service switch (lower element), maximum 30-ampere fuse or breaker.
4. Main distribution panel.
5. Water heater fuse or breaker on main distribution panel, fed from house meter and connection to upper water heater element.

NOTE:
*See drawing MIS_9 for typical installation of metering equipment.
*The sum of all the elements on at any time shall not exceed 5,500 watts.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-26 - NET-1

Double click on the icon and open the document.

[PDF]
NET-1.pdf
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-27 - NET-2

Double click on the icon and open the document.
MGE Will Furnish:
1. Service conductors and conduit.
2. Electric meter.

The Customer Will Furnish:
3. Main disconnect switch, fused at 200 amperes or less, with current-limiting fusing, if necessary.
4. MGE- and code-approved transition between gutter and main switch. See Table 7
5. Four-inch or five-inch PVC service conduit; contact MGE for required size.
6. Gutter as specified on page N2.
7. MGE-approved meter socket. For a commercial service, utilize an MGE-approved, heavy-duty meter socket with lever bypass and jaw release. See Table 3
   - For single-phase, 120/208-volt service, use five-terminal socket.
   - For three-phase, 120/208-volt service, use seven-terminal socket.
   See Drawing MIS-9 for meter wiring schematics.
8. Conduit and wiring to customer’s main distribution panel.
9. Ground in accordance with applicable electrical codes.
10. Pipe straps as required.
Double click on the icon and open the document.

NET-3.pdf
NET-3
OUTDOOR RESIDENTIAL MULTIPLE METER NETWORK SERVICE
120/208-VOLT, SINGLE-PHASE OR THREE-PHASE
200 AMPERES OR LESS PER METER POSITION
SEQUENCE: MAIN DISCONNECT-METER-SWITCH-FUSE

MGE Will Furnish:
1. Service conductors and conduit.
2. Electric meter.

The Customer Will Furnish:
3. Prebussed meter stack and bottom feed main disconnect switch with current-limiting fusing, if necessary. Meter stack and switch must be approved by MGE prior to purchase.
4. Four-inch or five-inch PVC service conduit; contact MGE for required size.
5. Ground in accordance with applicable electrical codes.
NET-4

COMMERCIAL MULTIPLE METERING NETWORK SERVICE
120/208-VOLT, SINGLE-PHASE OR THREE-PHASE
200 AMPERES OR LESS PER METER POSITION
SEQUENCE: MAIN DISCONNECT-METER-SWITCH-FUSE

MGE Will Furnish:

1. Service conductors and conduit.
2. Electric meter.

The Customer Will Furnish:

3. Prebussed main building disconnect switch with current-limiting fusing, if necessary.
4. Four-inch or five-inch PVC service conduit(s); contact MGE for required size.
5. Gutter, with an MGE- and code-approved transition or conduit; utilize in a top-fed main disconnect application.
6. Prebussed meter stack. Meter stacks to be approved by MGE on a case-by-case basis.
   -Required Duncan HQ-style meter socket with lever bypass and jaw release.
7. Ground in accordance with applicable electrical codes.

NOTES:
*On 120/208 volt three phase services, the customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-30 - NET-5

Double click on the icon and open the document.

NET-5.pdf
NET-5

INDOOR/OUTDOOR APARTMENT MULTIPLE METERING NETWORK SERVICE
120/208-VOLT, SINGLE-PHASE OR THREE-PHASE
200 AMPERES OR LESS PER METER POSITION
SEQUENCE: MAIN DISCONNECT-METER SWITCH-FUSE

MGE Will Furnish:
1. Service conductors.
2. Electric meters.

NOTES:
*On 120/208 volt three phase services, the customer is responsible to balance load over the phases as equally as commercial practice will permit and maintain this balance over time.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-31 - NET-6

Double click on the icon and open the document.

NET-6.pdf
NET-6
RESIDENTIAL OR COMMERCIAL
SINGLE METER NETWORK SERVICE,
THREE-PHASE, FOUR-WIRE
LARGER THAN 200 AMPERES
SEQUENCE: SWITCH-FUSE-METER

MGE Will Furnish:
1. Service conductors from manhole to building.
2. Electric meter and wiring to test switch.
3. Meter test switch, installed by customer.
4. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
5. Service conductors from vault to main switch. (When service comes from vault, contact MGE for more info.)
6. MGE and code approved transition or conduit. See Table 7
7. Four-inch or five-inch conduit(s) stubbed beyond outside building wall.
8. Minimum 12"x12"x24" gutter.
9. Main disconnect switch with current-limiting fusing, if necessary.
10. MGE-approved transformer-rated meter socket. See Table 3A
11. Current transformer cabinet with provision for padlocking. Services 1,200 amperes or less, minimum size 36"x36"x12" deep, or MGE approved transformer cabinet. See COM-11
12. One-inch rigid conduit for meter wiring.
13. Conductor to customer's distribution panel.
14. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-32 - NET-7

Double click on the icon and open the document.

NET-7.pdf
MGE Will Furnish:
1. Service conductors.
2. Meter test switch, installed by customer.
3. Electric meter and wiring to test switch.
4. "Window"-type current transformer, installed by customer.

The Customer Will Furnish:
5. Main disconnect switch with current-limiting fusing, if necessary.
6. MGE- and code-approved transition between gutter and main switch or conduit. See Table 7
7. Service entrance conduit(s) as specified on pages C2 and C3.
8. Gutter as specified on pages C2 and C3. The gutter can be installed horizontally or vertically.
9. Current transformer cabinet with provisions for padlocking, minimum size 24"x24"x9" deep, or approved MGE transformer cabinet, See COM-12
10. MGE-approved transformer-rated meter socket. See Table 3A
11. One-inch rigid conduit for meter wiring.
12. Conduit and wire to customer's distribution panel.
13. Ground in accordance with applicable electrical codes.
14. Pipe straps as required.
15. Slip coupling.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-33 - MIS-1A

Double click on the icon and open the document.

MIS-1A.pdf
MIS-1A
CLEARANCE GUIDELINES FOR A TYPICAL
OVERHEAD SERVICE DROP INSTALLATION (0-300 VOLTS)
ADAPTED FROM THE 2014 WISCONSIN ADMINISTRATIVE CODE

The following are guidelines for overhead service drops. Refer to the 2014 Wisconsin Administrative code chapter PSC 114 for specific information concerning special conditions, or contact MGE Engineering for assistance with specific applications.

A. Roads streets, alleys, nonresidential driveways, parking lots, and other areas subject to truck traffic. (1)
   Minimum Vertical Clearance
   18"*

B. Residential driveways. (1)(2)
   18"*

C. Spaces or ways subject to pedestrians or restricted traffic only. (1)(3)
   (Use the clearance value of item (H) if the requirement of footnote (3) is NOT met or does NOT apply to this area)
   14"*

D. Over roofs, balconies, porches, or attached decks accessible to pedestrians. (4)
   (Service drop attached to building.)
   12"* (10' to Drip Loop)

E. Over roofs or projections not accessible to pedestrians. (4)(5)
   (Service drop attached to building.)
   10"* (8' to Drip Loop)

F. Windows, doors, or similar locations. (6)(7)
   (Service drop attached to building.)
   3' (including drip loop)

G. Over Railings, walls, or parapets around balconies, decks, or roof.
   (Service drop attached to building.)
   5.5"*

H. Other land traversed by vehicles such as cultivated, grazing, forest, and orchard lands, industrial sites, commercial sites, etc. (1)(8)
   (Not shown)
   18"*

I. Playground equipment. (9)
   (Not shown)
   13"*

J. Under balconies, fire escapes, porches, decks, etc.
   (Service drop attached to building.) (Not Shown)
   5"*

K. Windows, doors, balconies, fire escapes, porches, decks, etc. (7)
   (Service drop attached to building.)
   3'

L. Swimming pool and spas. (10)
   (Not Shown)
   10'

M. Playground equipment. (11)
   (Not shown)
   5'
Footnotes to Items A Through M:

1. A diagonal clearance equal to the required vertical clearance shall be maintained to uneven or sloping terrain within a horizontal distance of 3/4 (75%) of the required vertical clearance. All distances shall be measured from the conductors in their wind-displaced position as defined in National Electric Safety Code (NESC) Rule 234A2.

2. Where the height of a residential building does not permit service drop(s) to meet these values, the clearances over residential driveways only may be reduced to the following:
   a. 14" for supply service drops limited to 150-volts to ground and meeting Rules 230C1 and 230C3 as stated in the National Electrical Safety Code (NESC).
   b. 10' for drip loops only of service drops limited to 150-volts to ground and meeting Rules 230C1 and 230C3 as stated in the NESC.

3. Spaces or ways subject to pedestrians, or restricted traffic only are those areas where riders on horses or other large animals, vehicles or other mobile units exceeding a total height of 8 ft are prohibited by regulation or permanent terrain configurations or are otherwise not normally encountered nor reasonably anticipated. (Use the clearance value of Item (H) on farms and in rural areas where riders on horses or other large animals are NOT prohibited by regulation).

4. A roof, balcony, porch or attached deck is considered readily accessible to pedestrians if it can be accessed through a doorway, ramp, window, stairway, or permanently mounted ladder. (A permanently mounted ladder is not considered a means of access if its bottom run is 8 ft or more from the ground or other permanently installed accessible surface.)

5. This clearance may be reduced to 3' for drip loops and 5' (*) for supply conductors limited to 300-volts to ground and if the roof has a slope of not less than 4 inches (vertical) to 12 inches (horizontal).

6. Above the top level of a window is considered out of reach from the window and, where necessary, may be installed less than 3' if all other requirements are met.

7. This does not apply to windows that are not designed to open and, where necessary, may be installed less than 3' if all other requirements are met.

8. When designing a line to accommodate oversized vehicles, these clearance values shall be increased by the difference between the known height of the oversized vehicle and 14 ft.

9. Vertical and diagonal clearance is from the highest points of the equipment installation in reference to the overhead service drop.

10. SWIMMING POOLS AND SPAS-10' minimum horizontal clearance from the inside walls on the pool or spas, and 22.5 ft. clearance in any direction to the edge of water surface or inside edge of pools.

11. Horizontal clearance is from the closest point of the equipment installation.

Note:
*Two additional feet of clearance have been added to these values to allow for additional sag when conductor temperatures exceeding 120 degrees Fahrenheit are caused by large load currents or when crossing under projections a reduction of sag when conductor temperatures are below zero degrees without ice.

Additional Notes:
-MGE prohibits the installation of pools and spas under overhead service conductors.
-ABOVE GROUND FLAMMABLE LIQUID STORAGE TANKS AND LP STORAGE TANKS-8' minimum horizontal clearance. (This does not apply to LP tanks of 1,000 gallons or less.)
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-34 - MIS-1B

Double click on the icon and open the document.

MIS-1B.pdf
CLEARANCE GUIDELINES FOR A TYPICAL OVERHEAD SERVICE DROP INSTALLATION (0-300 VOLTS) ADAPTED FROM THE 2014 WISCONSIN ADMINISTRATIVE CODE

The following are guidelines for overhead service drop attached to building. Refer to the 2014 Wisconsin Administrative Code Chapter PSC 114 for specific information concerning special conditions, or contact MGE Engineering for assistance with specific applications.

A. Over roofs, balconies, porches, or attached decks accessible to pedestrians. (1)  
B. Over roofs or projections not accessible to pedestrians. (1)(2)  
C. Signs, chimneys, billboards, antennas, etc. not accessible to pedestrians. (1)  
D. Windows, doors, or similar locations. (3)(4)  
E. Over railings, walls, or parapets around balconies, decks, or roof.  
F. Under balconies, fire escapes, porches, decks, etc.  
G. Building walls, projections, windows, doors, balconies, fire escapes, porches, decks, etc. (Service drop not attached to building.)  
H. Windows, doors, balconies, fire escapes, porches, decks, etc. (3)(4)  
I. Signs, chimneys, billboards, antennas, etc. not accessible to pedestrians. (1)  

Minimum Vertical Clearance  
12' (10' to Drip Loop)  
10' (8' to Drip Loop)  
5.5'  
3' (including Drip Loop)  
5.5'  
5'  

Minimum Horizontal Clearance  
With Wind Displacement  
5'  
3'  
3.5'  

1. A roof, balcony, porch or attached deck is considered accessible to pedestrians if it can be accessed through a doorway, ramp, window, stairway, or permanently mounted ladder. (A permanently mounted ladder is not considered a means of access if its bottom run is 8 ft or more from the ground or other permanently installed accessible surface.)

2. This clearance may be reduced to 3' for drip loops and 5' (*) for supply conductors limited to 300-volts to ground and if the roof has a slope of not less than 4 inches (vertical) to 12 inches (horizontal).

3. Above the top level of a window is considered out of reach from the window and, where necessary, may be installed less than 3' if all other requirements are met.

4. This does not apply to windows that are not designed to open and, where necessary, may be installed less than 3' if all other requirements are met.

Note:  
*Two additional feet of clearance have been added to these values to allow for additional sag when conductor temperatures exceeding 120 degrees Fahrenheit are caused by large load currents, or when crossing under projections a reduction of sag when conductor temperatures are below zero degrees without ice.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-35 - MIS-2

Double click on the icon and open the document.

MIS-2.pdf
MIS-2
CLEARANCE GUIDELINES BETWEEN GAS AND ELECTRIC METERS

1. Gas meter and piping.
2. Underground electric service conductors.
3. MGE-approved underground meter socket.
4. MGE-approved overhead meter socket.
5. MGE-approved pedestal-type meter socket.
6. Two-inch PVC conduit for electric service conductors.
7. Overhead service riser and conductors.
8. Conduit and wire to main distribution panels.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-36 - MIS-3

Double click on the icon and open the document.

MIS-3.pdf
Dimensions and configuration shown are typical. Each transformer vault will be treated on an individual basis. Consult MGE for required vault dimensions and configuration. The customer will be responsible for the structural design and construction of the transformer vault.

**MGE Will Furnish:**
- Submersible network transformer.
- Primary cables and terminations at transformer.
- Secondary terminations at transformer.
- Ground rods (coordination required-installed prior to pouring of vault floor).
- Pulling irons at appropriate locations (furnished by MGE, installed by customer; coordination required-installed prior to pouring of vault wall).

**The Customer Will Furnish:**
1. Transformer vault, including structural design, construction with proper support of existing facilities, and permanent maintenance.
2. Galvanized equipment access doors, 6'x8' minimum, grilled to provide ventilation.
3. Galvanized personnel access doors, 32"x32" minimum, grilled to provide ventilation.
4. Sump pit, 18"x18" minimum, covered with galvanized steel plate, locate just to the side of one of the ladders; entire floor must drain toward pit. Floor must be smooth troweled.
5. Galvanized steel ladders at personnel access door.
6. Lighting with associated light switches located at each personnel access door no more than 18" below the ceiling.
7. Electrical outlets, as required by code, and at least one 120/208-volt outlet at the light switch location for each personnel access door.
8. Secondary bus duct from main disconnect switch to collector bus including NEMA 2-hole, double-compression copper lugs or secondary wires from main disconnect to collector buss.
9. Ventilation per all applicable codes. Forced air ventilation is required if free air ventilation can not be met. The code requires 3 square inches of free space per KVA of transformer capacity.

**NOTE:**
1. Vaults shall be constructed and maintained in accordance with all applicable codes and regulations.
2. Permanent truck access to the vault is required.
3. MGE requires that the transformer vault be located away from occupied space.
4. This information is intended to supplement the customer's construction documents, any discrepancies shall be forwarded to MGE Engineering.
MIS-4

TYPICAL TRANSFORMER ENCLOSURE

Dimensions and configuration shown are typical. Each transformer enclosure will be treated on an individual basis. Consult MGE for required enclosure dimensions and configuration. The customer will be responsible for the structural design and construction of the transformer enclosure.

MGE Will Furnish:

1. MGE transformers.
   - High-voltage cables.
   - MGE will make terminations at transformer (for standard cable size an amounts only).

The Customer Will Furnish:

2. Concrete transformer pad, constructed to support three equal loads totaling 10,000 pounds. Pad must be level.
3. Interior of enclosure to be crushed rock.
4. Fence, 8' high with top 1' to be 3 strands barbed wire, or an 8' nonscalable block wall.
5. Service conduits, cables, and cable supports.
6. A 3' opening with gate and locking hasp.
7. Two 6" PVC conduits, Schedule 40, UL listed, buried 30" deep. Utilize sweep 90 bends, turn up and cap.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-38 - MIS-5

Double click on the icon and open the document.

MIS-5.pdf
MGE Will Furnish:
1. Overhead service conductors, maximum length of 100 feet.
2. Compression-type connectors.
3. Electric meter.

The Customer Will Furnish:
4. Point of Attachment—insulate spool and bracket to support service drop conductors.
5. Service riser, conductors, and weatherhead. Leave 36-inch-long wire leads for connection to MGE service drop.
6. Customer-owned pole with minimum cross section of 4"x4". Poles over 16' long must be a minimum Class 7 pole or equivalent.
7. MGE-approved meter socket with horn bypass. See Table 1
8. Distribution panel/outlets.
9. Two braces in direction of service origin.
10. Two 2"x4" stakes.
11. Ground in accordance with applicable electrical codes.
   - Temporaries within certain municipalities will require the electrical contractor to submit a signed and notarized affidavit in lieu of the certificate of inspection.

NOTE: For temporary services larger than 100A or three phase, see MGE commercial service rules.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-39 - MIS-6

Double click on the icon and open the document.

MIS-6.pdf
MIS-6

CUSTOMER-OWNED UNDERGROUND
TEMPORARY SERVICE ENTRANCE
SINGLE-PHASE, 120/240 VOLTS
120/208 VOLTS, 100A OR LESS
SEQUENCE: METER-SWITCH-FUSE

1. Existing MGE pedestal or pad-mounted Transformer.

MGE Will Furnish:

2. Electric meter.

The Customer Will Furnish:

3. MGE-approved meter socket with horn bypass; four terminal for 120/240-volt single-phase; five terminal for 120/208-volt single-phase. See Table 1

4. Distribution panel/outlets.

5. Supporting post with a minimum cross section of 4"x4".

6. Two-inch PVC conduit.

7. Protective flexible conduit and cable of sufficient length to be terminated in pedestal or pad-mounted transformer. Cable must be protected in accordance with applicable codes. MGE personnel to make terminations within pedestals and transformer.

8. Ground in accordance with applicable electrical codes.

- Temporaries within certain municipalities will require the electrical contractor to submit a signed and notarized affidavit in lieu of the certificate of inspection.

NOTE: For temporary services larger than 100A or three phase, see MGE commercial service rules.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-40 - MIS-7

Double click on the icon and open the document.

MIS-7.pdf
MGE Will Furnish:

1. Pole and transformer, contact MGE for determination of location and cost.
2. Service conductors.
3. Compression-type connectors.
4. "Window"-type current transformer, installed by customer.
5. Wiring form current transformer to transformer-rated meter socket.
6. Transformer-rated electric meter.

The Customer Will Furnish:

7. Minimum 30', Class 6 pole buried to a minimum depth of 5' with guyings as necessary.
8. Point of Attachment—suitable insulated spool and bracket to support service conductors.
9. MGE-approved, pole-top manual transfer switch. See Table 6
10. Wiring through current transformer to transfer switch.
11. One-inch rigid conduit and weatherhead for current transformer wiring.
12. Approved transformer-rated meter socket.
13. Service conductors to fused distribution panels in other outbuildings.
14. Standby generator receptacle, conduit, and weatherhead.
15. Ground in accordance with applicable electrical codes.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-41 - MIS-8

Double click on the icon and open the document.
2. MGE-approved manual transfer switch, double-pole, double-throw with break-before-make contacts.
4. Generator breaker.

NOTE: Contact MGE Engineering for approval of all installations.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-42 - MIS-9

Double click on the icon and open the document.

MIS-9.pdf
SINGLE-PHASE 120/240 VOLT THREE-WIRE

THREE-PHASE 240 VOLT THREE-WIRE

THREE-PHASE 120/208 OR 277/480 VOLT FOUR-WIRE

MIS-9

TYPICAL DIRECT-METERING WIRING DIAGRAMS
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-43 - MIS-10

Double click on the icon and open the document.

MIS-10.pdf
All new services are subject to winter charges from December 1 through April 1 each year.

Charges subject to change.

(Turn over for three-phase).
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-44 - MIS-11

Double click on the icon and open the document.

MIS-11.pdf
All new services are subject to winter charges from December 1 through April 1 each year.
Charges subject to change.
Effective Date: 03/16/2015
Revision No.: 0
16.0 - Service Details
Figure 16-45 - MIS-12

Double click on the icon and open the document.

MIS-12.pdf
MIS-12

METER SHIELD

The customer is responsible for protecting MGE's meter(s) from damage caused by falling ice, snow, or other objects. If protection is not provided for MGE's meter, by adequate roof overhang, the Customer shall construct a protective shield, or the meter location shall be moved to a safe area. The Customer will be charged for meter replacement if damage occurs. An adequate roof overhang shall extend a minimum of 24" out from the face wall to which the meter is mounted.

Notes:
1. Steel to be primed and painted with rust resisted paint.
2. Shield shall be capable of supporting 50 pounds.
3. Shield may be constructed of steel, treated wood, or masonry. Thin sheet metal (tin) is not acceptable.
4. Shield to be so located as to not be a "head bumping" hazard.
5. Width of shield may vary depending on the number of meters being protected.
# Table 1 - Residential Meter Pedestals, Meter Main Pedestals, and Meter Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/240 V 4-Terminal</th>
<th>120/208 V 5-Terminal</th>
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</thead>
<tbody>
<tr>
<td><strong>Milbank</strong></td>
<td>200 A</td>
<td>Horn</td>
<td>UG Socket Only</td>
<td>U3358-O-KK</td>
<td>U3358-O-KK</td>
<td>[9]</td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Horn</td>
<td>UG Meter - Main</td>
<td>NU8980-O-KK</td>
<td>NU8980-O-KK</td>
<td>[9][4][6]</td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Horn</td>
<td>UG Meter - Main</td>
<td>U5136-O-#</td>
<td>U5136-O-#</td>
<td>[9][10]</td>
</tr>
<tr>
<td>Durham, Eaton-Cutler Hammer, Midwest Electric Products, or Square-D</td>
<td>200 A</td>
<td>Horn</td>
<td>UG Socket Only</td>
<td>UHTRP242363-( )</td>
<td>UHTRP242363-( )</td>
<td>[8]</td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>200 A</td>
<td>Horn</td>
<td>UG Socket Only</td>
<td>UAP317-PPWI</td>
<td>UAP317-PPWI</td>
<td>[2]</td>
</tr>
<tr>
<td></td>
<td>320 A</td>
<td>Lever</td>
<td>UG Socket Only</td>
<td>U5849-O-#</td>
<td>U5849-O-#</td>
<td>[9][13]</td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>320 A</td>
<td>Lever</td>
<td>UG Socket Only</td>
<td>47604P-9WI</td>
<td>47604P-9WI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/240 V 4-Terminal</th>
<th>120/208 V 5-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milbank</strong></td>
<td>100 A</td>
<td>Horn</td>
<td>OH Socket Only</td>
<td>U7487-RL-TG-KK</td>
<td>U7487-RL-TG-KK</td>
<td>[12]</td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Horn</td>
<td>OH Meter - Main</td>
<td>U5168-XTL-100-KK</td>
<td>U5168-XTL-100-KK</td>
<td>[6][13]</td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Horn</td>
<td>OH Meter - Main</td>
<td>U5842-RL-100-KK</td>
<td>U5842-RL-100-KK</td>
<td>[9][13]</td>
</tr>
<tr>
<td>Durham, Eaton-Cutler Hammer, Midwest Electric Products, or Square-D</td>
<td>200 A</td>
<td>Horn</td>
<td>OH Socket Only</td>
<td>UHTRS202C-( )</td>
<td>UHTRS202C-( )</td>
<td>[8]</td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>200 A</td>
<td>Horn</td>
<td>OH Socket Only</td>
<td>UHTRS213C-( )</td>
<td>UHTRS213C-( )</td>
<td>[8]</td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>200 A</td>
<td>Horn</td>
<td>OH Socket Only</td>
<td>UAT317-0Q</td>
<td>UAT317-0Q</td>
<td>[2]</td>
</tr>
</tbody>
</table>

**Footnotes for Table 1:**
1. Underground service to a single-family home requires a 200-ampere-rated meter socket.
2 Requires installation of a fifth terminal at nine o'clock; use Part No. H659-0121.
3 Pedestal includes meter and main switch.
4 Replace the compression terminals with mechanical-type lugs; Part No. K1539.
5 Requires the use of extension Part No. S3488.
6 Requires the use of extension Part No. S1848.
7 For pedestals with breakers, install Wire Kit K4714 to provide series-wired main.
8 ( ) = (blank) Durham, (CH) Eaton-Cutler Hammer, (E) Eaton, (MEP) Midwest Electric Products, or (SQD) Square-D
9 For field-installable fifth terminal, order Catalog Number K5T (9 o'clock position).
10 # = Multiple catalog numbers related to breaker configurations; all three types approved.
11 Must use UQFBH style or other breakers that maintain the 22K AIC rating.
12 For field-installable fifth terminal, order Catalog Number 5T8K2 (must be bolted in).
13 Models are rated 22K AIC when using Siemens QPH (100 Amps) or QNH (200 Amps) breakers.
Table 2 - Residential Multi-Position Meter Sockets and Meter Main Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>Number of Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Milbank</td>
<td>100 A</td>
<td>Horn</td>
<td>OH</td>
<td>Socket Only</td>
<td>L572-XL-KK</td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Horn</td>
<td>OH</td>
<td>Socket Only</td>
<td>U2692-XL-KK</td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Horn</td>
<td>OH</td>
<td>Socket Only</td>
<td>U7363-XL-KK</td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Horn</td>
<td>OH/UG</td>
<td>Meter - Main</td>
<td>U5902-X-KK</td>
</tr>
<tr>
<td>Eaton</td>
<td>100/200 A</td>
<td>Horn</td>
<td>OH/UG</td>
<td>Meter - Main</td>
<td>1 MP Series</td>
</tr>
<tr>
<td>Square D</td>
<td>100/200 A</td>
<td>Horn</td>
<td>OH/UG</td>
<td>Meter - Main</td>
<td>MPH Series</td>
</tr>
</tbody>
</table>

Footnotes for Table 2:
1. When used for underground service, a separate pull section must be added. Contact MGE Engineering.
2. For 120/208 V service, must include fifth terminals at nine o'clock position.
3. For 120/208 V service, use field-installable fifth terminal; use K9959 for the 9 o'clock position.
4. For 120/208 V service, use field-installable fifth terminal; order Catalog Number K5T (9 o'clock position).
5. For 120/208 V service, use field-installable fifth terminal; order Catalog Number S2291-TO for the 9 o'clock position.
6. For underground service, order the S2291-TO pedestal raceway. A 12-inch pedestal extension kit is also available; order Catalog Number S2571.
7. Replace K# with appropriate connector kit. (K1 = (1) #6-350MCM, K3 = (1) #4-600MCM, K4 = (2) #2-600MCM). Contact MGE Engineering.
Table 3 - Commercial and Industrial Meter Sockets

### Meter Pedestals

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/240 V or 120/208 V Single-Phase 5-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Socket Only</td>
<td>U4724-O-5T9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Meter - Main</td>
<td>U4322-O-5T9[^2]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Meter - Main</td>
<td>U5707-O-100S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Meter - Main</td>
<td>U6221-O-100-5T9-10GR</td>
<td></td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>200 A</td>
<td>Lever</td>
<td>UG, Socket Only</td>
<td>U5949-O-5T9[^2][^4]</td>
<td></td>
</tr>
</tbody>
</table>

### Meter Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/240 V or 120/208 V Single-Phase 5-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Socket Only</td>
<td>U9550-RL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Meter - Main</td>
<td>U5871-XL-200-5T9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Meter - Main</td>
<td>U6281-XL-200-5T9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Main - Meter</td>
<td>U5764-X-200-5T-#[^3][^4]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>UG, Socket Only</td>
<td>U4801-XL-5T9</td>
<td></td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>200 A</td>
<td>Lever</td>
<td>OH/UG, Socket Only</td>
<td>U5784-O-200-5T-#[^3][^4]</td>
<td></td>
</tr>
</tbody>
</table>

### Meter Pedestals

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/208 V Three-Phase 7-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Socket Only</td>
<td>U9107-O-WI[^1]</td>
<td></td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>100 A</td>
<td>Lever</td>
<td>UG, Socket Only</td>
<td>40407P-9WI</td>
<td></td>
</tr>
</tbody>
</table>

### Meter Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>120/208 V Three-Phase 7-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Main - Meter</td>
<td>U5767-X-200-#[^2][^4]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>UG, Main - Meter</td>
<td>U5787-O-200-#[^2][^4]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>OH/UG, Socket Only</td>
<td>U1493-X-ALT</td>
<td></td>
</tr>
<tr>
<td>Durham, Eaton-Cutler Hammer, Midwest Electric Products, or Square-D</td>
<td>200 A</td>
<td>Lever</td>
<td>OH/UG, Socket Only</td>
<td>U9700-RRL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Meter Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Size</th>
<th>Bypass</th>
<th>Use</th>
<th>Sequence</th>
<th>277/480 V Three-Phase 7-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>200 A</td>
<td>Lever</td>
<td>OH, Main - Meter</td>
<td>U5767-X-200-#[^2][^4]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 A</td>
<td>Lever</td>
<td>UG, Main - Meter</td>
<td>U5787-O-200-#[^2][^4]</td>
<td></td>
</tr>
</tbody>
</table>
Footnotes for Table 3:
1. For free-standing use, order Burial Kit S3488 separately.
2. Must be installed so that the rear of the pedestal can still be accessed for installing service wires.
3. # = Multiple catalog numbers related to breaker configurations; all types approved.
4. This equipment is Cold Sequence.
5. ( ) = (blank) Durham, (CH) Eaton-Cutler Hammer, (E) Eaton, (MEP) Midwest Electric Products, or (SQD) Square-D
6. Includes Ground Lug 36503, #14-2/0.

Table 3A - Transformer Rated Meter Sockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>120/240 V Single-Phase 5-Terminal [1][2]</th>
<th>120/208 V Single-Phase 8-Terminal</th>
<th>120/208 V Three-Phase 13-Terminal</th>
<th>277/480 V Three-Phase 13-Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milbank</td>
<td>UC7442-RL</td>
<td>UC7448-XL</td>
<td>UC7449-XL</td>
<td>UC7449-XL</td>
</tr>
<tr>
<td>Siemens/Talon</td>
<td>9837-8203</td>
<td>9837-8403</td>
<td>9837-8503</td>
<td>9837-8503</td>
</tr>
</tbody>
</table>

Footnotes for Table 3A:
1. No hub opening for outdoor use.
2. MGE installs and wires test switch.
3. Fifth terminal must be in the nine o'clock position.
4. ( ) = (blank) Durham, (CH) Eaton-Cutler Hammer, (E) Eaton, (MEP) Midwest Electric Products or (SQD) Square-D
### Table 4 - Approved Transockets

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Service Size</th>
<th>Bottom Entry/Top Exit</th>
<th>Wall-Mount Bottom Entry / Bottom Exit</th>
<th>Pad-Mount Bottom Entry / Bottom Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMP Manufacturing and Supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400A</td>
<td>MGECT4-3TM</td>
<td>MGECT4-4TM</td>
<td>MGECT4-3TMB</td>
<td>MGECT4-4TMB</td>
</tr>
<tr>
<td>600A</td>
<td>MGECT6-3TM</td>
<td>MGECT6-4TM</td>
<td>MGECT6-3TMB</td>
<td>MGECT6-4TMB</td>
</tr>
<tr>
<td>800A</td>
<td>MGECT8-4TM</td>
<td>MGECT8-4TM</td>
<td>MGECT8-4TMB</td>
<td>MGECT8-4TMB</td>
</tr>
<tr>
<td>1200A</td>
<td>MGECT12-4TM</td>
<td>MGECT12-4TMB</td>
<td>MGECT12-4TMB</td>
<td>MGECT12-4TMB</td>
</tr>
<tr>
<td>1600A</td>
<td>MGECT16-4</td>
<td>MGECT16-4B</td>
<td>MGECT16-4B</td>
<td>MGECT16-4B</td>
</tr>
<tr>
<td>2500A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milbank (Galva-Closure Products)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400A</td>
<td>MGEM-403UG</td>
<td>MGEM-404UG</td>
<td>MGEM-403UGBX</td>
<td>MGEM-403PM</td>
</tr>
<tr>
<td>600A</td>
<td>MGEM-603UG</td>
<td>MGEM-604UG</td>
<td>MGEM-603UGBX</td>
<td>MGEM-603PM</td>
</tr>
<tr>
<td>800A</td>
<td>MGEM-804UG</td>
<td>MGEM-804UG</td>
<td>MGEM-804UGBX</td>
<td>MGEM-804PM</td>
</tr>
<tr>
<td>1200A</td>
<td>MGEM-1204UG</td>
<td>MGEM-1204UGX</td>
<td>MGEM-1204UGX</td>
<td>MGEM-1204PM</td>
</tr>
<tr>
<td>1600A</td>
<td>MGEM-1604UG</td>
<td>MGEM-1604UGX</td>
<td>MGEM-1604UGX</td>
<td>MGEM-1604PM</td>
</tr>
<tr>
<td>Erickson</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400A</td>
<td>MGE1182-1</td>
<td>MGE1182-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>600A</td>
<td>MGE283-1</td>
<td>MGE283-2</td>
<td></td>
<td></td>
</tr>
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<td>800A</td>
<td>MGE283-2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1200A</td>
<td>CT-124MGE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600A</td>
<td>CT-164MGE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000A</td>
<td>CT-200MGE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5 - Approved Combo (Disconnect and CT) Units - Bottom Entry/Top Exit

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Service Size</th>
<th>Single-Phase 120/240V or 120/208V</th>
<th>Three-Phase 120/208V</th>
<th>Three-Phase 480Y/277V</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMP Manufacturing and Supply</td>
<td>400A</td>
<td>MGEMCT225J</td>
<td>MGEMCT325J</td>
<td>MGEMCT365J</td>
</tr>
<tr>
<td></td>
<td>600A</td>
<td>MGEMCT226J</td>
<td>MGEMCT326J</td>
<td>MGEMCT366J</td>
</tr>
<tr>
<td></td>
<td>800A</td>
<td>MGEMCT327L</td>
<td>MGEMCT367L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200A</td>
<td>MGEFMCT328L</td>
<td></td>
<td>MGEFMCT368L(3)</td>
</tr>
</tbody>
</table>

Footnotes for Table 5:
1. For bottom exit applications, install PB84 pullbox.
2. MGE does not allow fusible pullouts in combo units.
3. Does not have ground fault protection; only approved for fire pump service use.
### Table 8A - Approved Underground Service Conduits

<table>
<thead>
<tr>
<th>Service Size</th>
<th>Conduit Quantity and Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 A</td>
<td>(1) 4&quot;</td>
</tr>
<tr>
<td>600 A</td>
<td>(2) 4&quot;</td>
</tr>
<tr>
<td>800 A</td>
<td>(2) 4&quot;</td>
</tr>
<tr>
<td>1000 A</td>
<td>(3) 4&quot;</td>
</tr>
<tr>
<td>1200 A</td>
<td>(3) 4&quot;</td>
</tr>
<tr>
<td>1600 A</td>
<td>(4) 4&quot;</td>
</tr>
<tr>
<td>2000 A</td>
<td>(5) 4&quot;</td>
</tr>
<tr>
<td>Above 2000 A</td>
<td>Contact MGE Engineering</td>
</tr>
</tbody>
</table>

### Table 8B - Approved Underground Service Raceways

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Catalog Number</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erickson</td>
<td>USR-36</td>
<td>11&quot; x 6&quot; x 36&quot;</td>
</tr>
<tr>
<td></td>
<td>USR-48</td>
<td>11&quot; x 6&quot; x 47&quot;</td>
</tr>
<tr>
<td></td>
<td>USR-60</td>
<td>11&quot; x 6&quot; x 59&quot;</td>
</tr>
<tr>
<td>Milbank</td>
<td>CC-36</td>
<td>10.5&quot; x 6&quot; x 36&quot;</td>
</tr>
<tr>
<td>(Galva-Closure Products)</td>
<td>CC-46</td>
<td>10.5&quot; x 6&quot; x 46&quot;</td>
</tr>
<tr>
<td></td>
<td>CC-60</td>
<td>10.5&quot; x 6&quot; x 60&quot;</td>
</tr>
<tr>
<td>AMP Manufacturing and Supply</td>
<td>WWPB36</td>
<td>12&quot; x 6&quot; x 36&quot;</td>
</tr>
<tr>
<td></td>
<td>WWPB48</td>
<td>12&quot; x 6&quot; x 48&quot;</td>
</tr>
<tr>
<td></td>
<td>WWPB60</td>
<td>12&quot; x 6&quot; x 60&quot;</td>
</tr>
<tr>
<td></td>
<td>WWLPB118</td>
<td>12&quot; x 12&quot; x 18&quot; R</td>
</tr>
<tr>
<td></td>
<td>WWLPB136</td>
<td>12&quot; x 12&quot; x 36&quot; R</td>
</tr>
<tr>
<td></td>
<td>WWLPB148</td>
<td>12&quot; x 12&quot; x 48&quot; R</td>
</tr>
</tbody>
</table>

**Notes:**
- MGE prefers the use of 4" conduits with expansion fittings instead of service raceways.
- Stub conduits or raceways 18" below grade for wall-mount applications.
- For pad-mount applications, provide large 36" 90 degree sweeps at 36" below grade toward MGE transformer.
- Use one 6" raceway for service less than or equal to 800 amperes.
- Use two 6" raceways or one 12" raceway for service greater than 800 amperes to 1,600 amperes.
- For services greater than 2,000 amperes, contact MGE Engineering.
<table>
<thead>
<tr>
<th>Supplier</th>
<th>Service Size</th>
<th>Wall-Mount Bottom Entry/Top Exit R</th>
<th>Wall-Mount Bottom Entry/Bottom Exit R</th>
<th>Pad Mount Bottom Entry/Bottom Exit</th>
</tr>
</thead>
<tbody>
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