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GENERAL REQUIREMENTS FOR UNDERGROUND SERVICE

Space Requirements
1. The unobstructed space required in front of termination compartments, transsockets, and metering equipment shall be as defined by the “Working Space About Electrical Equipment,” Section 110.26 of the National Electric Code (as adopted by the states Michigan and Wisconsin). This unobstructed space shall extend from the floor, or ground, to a minimum height of 6'-6". For equipment higher than 6'-6", this space shall extend to the top of the equipment.

Service Laterals and Entrances
1. Service laterals are furnished and installed by the Company.
2. Service laterals will generally be terminated in a meter pedestal, transsockets, or termination compartment. Customers shall obtain information from the Company relative to the proper location of service lateral and termination equipment. Such information will be furnished in writing upon request.
3. The preferred termination of service laterals is on the outside of a building (or structure). Service laterals that terminate inside of a building shall terminate immediately upon entering as shown in this manual. The raceway for service laterals under or through a building shall not extend longer than 8’ after penetrating the outside wall. This 8’ rule is a We Energies 8’ requirement in addition to the SPS 316 8’ requirement. NEC article 230.6, Conductors Considered Outside the Building, are not exempt from the We Energies 8’ rule. Services that terminate in a mezzanine are allowed a maximum length of 14’ measured from grade.
4. With Company approval, service laterals, generally 2000 Amp or larger, may be terminated in the customer’s switchgear or on the customer’s bus duct. This type of installation is further restricted by the following:
   a. Customer shall provide all necessary plastic conduit encased in 3” of concrete for the extension of the cable within his building (see Note 3 above).
   b. Customer shall obtain Company acceptance of the switchgear termination and C.T. compartment design. A copy of the switchgear plans shall be submitted to the local We Energies job representative for acceptance. The plans must show the general layout of the switchgear, the switchgear location within the building, and the specific details of the termination compartment and any C.T. compartment(s). Specific details such as compartment size, bus spacing and drilling dimensions, other clearances, bus and bus support configuration, barrier location, sealing provisions, and materials used are to be included.
5. Only meter mounting devices and termination equipment approved and listed in Section D of this manual are to be used. Additionally, all equipment must be listed by a nationally recognized testing laboratory, e.g. UL, installed, and used as per the listing and the manufacturer’s instructions.
6. Where metallic rigid conduit or IMC is used for the service lateral conduit, the ends are to be threaded and threaded couplings, connectors, or locknuts are to be used. Slip type fittings shall not be used.
7. For outdoor service terminations with a direct burial lateral, the horizontal portion of the conduit shall extend through a minimum of 12” of undisturbed earth where practical, defined as follows:
   a. Undisturbed earth: The area not excavated for the construction of the building (may be compacted fill).
   b. Fill area: The area between the building wall and the undisturbed earth (may vary from a few inches to several feet or more).
8. Services to individual dwelling units shall consist of one service lateral and one meter.
9. Refer to outlet location letter and/or signed sketches for services that may have concrete encased laterals.
10. Excess service entrance conductor slack is not allowed to be “lost” in the service entrance equipment.

Grounding
1. Grounding shall be in accordance with all applicable codes.
2. The grounding electrode conductor shall not be run through the meter pedestals, transsockets, or termination compartment, unless a separate raceway is provided. The grounding electrode conductor may terminate on the neutral bus of: the termination compartment for multi-metered installations provided it does not interfere with the installation of the service lateral conductors or a meter pedestal equipped with a main disconnect and listed as Service Equipment.
3. Ground rods and grounding electrode conductors shall not be located in front of meter pedestals or raceways.
4. Bonding to other systems (ex: communication) shall not be done on within a metering enclosure unless a means of bonding intended for inter-system bonding is furnished as part of the metering enclosure (PSC 114.099(C)).

Metering
1. This section details the requirements for underground service lateral terminations and connections. Refer to the metering section of this manual for details of the metering requirements for each installation.
REFERENCE
NAME OF PARTS FOR UNDERGROUND SERVICE

Customer furnishes and installs:
A - Meter pedestal
B - Service entrance conduit and conductors
C - Distribution panel, main fuse/disconnect
D - Transsocket
E - Transformer rated meter socket
F - Wiring trough (1600 Amp maximum)
G - Termination compartment, either wire or bus connected type.
H - Metering or main disconnect/fuse, wire connected for use with wire type termination compartment only.

Customer furnishes and installs:
I - Metering equipment, bus connected for use with bus connection type termination compartment only and of same manufacturer.
J - Service later conduit

Company furnishes and installs:
K - Underground service lateral
L - Watthour meter
REFERENCE
CONDUIT LAYOUTS

Customer furnishes and installs:
1. Service lateral conduit.
2. Steel reinforcing rods, 5/8" x 6' (epoxy coated re-bar).
3. Conduit spacers.
4. Continuous concrete envelope with a minimum of 3” of concrete on all sides.

Note: The grounding electrode conductor shall not be run through the meter pedestals, transockets, or termination compartment, unless a separate raceway is provided.

Conduit Details for 400 – 1600 Amperes

Conduit Details for 2000 – 4000 Amperes

Switchgear Requirements 2000, 3000, and 4000 Amperes

<table>
<thead>
<tr>
<th>Switchgear Amperage</th>
<th>Minimum Width of Termination Compartment</th>
<th>Sets of Holes Required</th>
<th>Minimum Number of Ducts</th>
<th>Width of Conduit Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>24 Inches</td>
<td>6</td>
<td>6</td>
<td>24 Inches</td>
</tr>
<tr>
<td>3000</td>
<td>30 Inches</td>
<td>8</td>
<td>8</td>
<td>30 Inches</td>
</tr>
<tr>
<td>4000</td>
<td>36 Inches</td>
<td>10</td>
<td>10</td>
<td>36 Inches</td>
</tr>
</tbody>
</table>

Note: The dimensions shown above are minimums and should not be used for design purposes. For actual dimensions contact the switchgear manufacturer.

Note: For switchgear, the conduit shall be installed so the duct package width is parallel with the bus.
SERVICE TERMINATION IN A SERVICE ASSEMBLY FOR MOBILE HOMES
1 OR 2 METERS, 1Ø, 120/240 VOLT, 0-200A PER METER

Customer furnishes and installs:
1. Company listed mobile home metering pedestal (see D-11).
2. Company listed pedestal supporting stake bolted to the pedestal (see D-9) or equivalent (see Note 1).
3. Grounding electrode conductor in non-metallic conduit and grounding electrode(s) per applicable codes (see U-2).

Company furnishes and installs:
4. Watthour meter.
5. Service lateral (radial feed, loop through installation)

Notes:
1. A 1-5/8" x 1-5/8" galvanized steel framing channel 80" long or a galvanized steel support or equal strength.
2. Article 550 of the National Electric Code covers the special requirements for mobile homes. A few of the requirements are listed below. See the NEC for a complete listing of the requirements.
   • Mobile home service equipment must have a means for providing service to an auxiliary building or electrical equipment located outside the mobile home by a fixed wiring means.
   • Additional 120 Volt, 15 or 20 Amp GFCI protected receptacles are permitted for equipment located outside of the mobile home.
   • The service or disconnecting means must be within sight of and not more than 30 feet from an exterior wall of the mobile home.
   • All wiring must be installed as per the NEC, State, and Local ordinances.

[Diagrams showing service termination in single and double meter units]
SERVICE TERMINATION IN A METER PEDESTAL, DIRECT BURIED LATERAL (0-320A)
FREE STANDING, 1 METER
NOT TO BE USED FOR MOBILE HOMES

Customer furnishes and installs:
1. Company listed meter pedestal (see Notes 1).
2. Company listed supporting stake or concrete footing (.75 cubic feet minimum) (see Notes 2 & 3 and D-9)
3. Service entrance conductors (not shown, see Note 4).
4. Service entrance conduit.
5. Ground conductor in non-metallic conduit, installed only when the pedestal has a main disconnect.
6. Grounding electrode(s) per applicable codes (see U-2).
7. Accessory foot for concrete foundations.

Company furnishes and installs:
8. Service lateral.
9. Watthour meter.

Notes:
1. Unit shall have a main service switch and fuse, or circuit breaker, either integral or attached to the pedestal.
2. Pedestal shall be set in firmly compacted soil up to the grade line of the pedestal.
3. A 1-5/8” x 1-5/8” galvanized steel framing channel 80” long or a galvanized steel support of equivalent strength.
4. Service entrance conductors shall exit the pedestal below the lowest live part and above grade.
SERVICE TERMINATION IN A METER PEDESTAL, DIRECT BURIED LATERAL (0-320A) ATTACHED TO A BUILDING

Customer furnishes and installs:
1. Company listed meter pedestal (see Notes 1 & 2).
2. Service entrance conduit.
3. Service entrance conductors (not shown, see Note 3).

Company furnishes and provides:
4. Service lateral.
5. Watthour meter.

Notes:
1. Pedestal shall set in firmly compacted soil up to the grade line of the pedestal.
2. The customer shall be responsible for firmly securing the pedestal to the building.
3. Service entrance conductors shall exit the pedestal below the lowest live part and above grade.
4. An allowance for the building wall, when the pedestal is mounted to the foundation, must be present.
5. When a two position meter pedestal is installed, the positions must be labeled (see Note 7 on M-2).
SERVICE TERMINATION IN A MULTI-POSITION METER SOCKET
(1Ø, 120/240 VOLTS, 0-400A BUS, 0-200A PER METER, 2-6 METERS)

DIRECT BURIED LATERAL

Customer furnishes and installs:
1. Service entrance conduit.
2. Service entrance conductors.
3. Metallic conduit shall be bonded.
4. Company listed 2 to 6 position meter socket (see all Notes below and D-7, D-8, or D-9).
5. Service lateral wiring raceway.

Company furnishes and installs:
7. Watthour meters (not shown).

Notes:
1. The company will provide lugs for terminating incoming service lateral for all sockets rated 600 Amps or more.
2. Separate cable compartments provided on some meter sockets are for the Company’s service lateral cable only.
3. Each meter position shall be marked on the outside of the socket or by the breaker (if available) with the address of the unit served. If the marking is on the outside of the removable cover, it shall also be marked on the inside of the meter socket in a visible location. This marking shall also be placed on the corresponding distribution panel(s). The marking shall be a permanent label with 1/2” block letters and may consist of individual self-stick letters or numbers, suitable for the location so as to be considered permanent (see Note 7 on M-2).
SERVICE TERMINATION IN AN OUTDOOR METER SOCKET

TEMPORARY SERVICE

1Ø, 120/240 VOLTS, 0-200A
1Ø, 120/208 VOLTS, 0-200A

Customer furnishes and installs:
1. Treated 4" x 4" wood post or equivalent (see Note 1).
2. Painted 3/4" weatherproof plywood to extend a minimum of 1" beyond the meter socket on all 4 sides.
3. Company listed 200A meter socket (D-7).
4. Metallic conduit shall be bonded.
5. Service entrance conductors.
7. Weatherproof disconnecting means (see Note 2).
8. Ground conductor in conduit.
9. Grounding electrode(s) per applicable codes (see U-2).
10. Service lateral conduit (see Note 3).
11. Split ring type conduit supports or galvanized steel 2-hole conduit straps.

Company furnishes and installs:
13. Flexible polyethylene conduit.
15. Watthour meter (not shown).

Notes:
1. The temporary service assembly shall be located 6' from the Company service pedestal or padmounted transformer.
2. Consult the local Company office for alternate locations for mounting the disconnect.
3. 2" galvanized rigid, galvanized intermediate, or rigid non-metallic sch. 80 PVC conduit per NEMA standard TC-2.
4. For larger C.T. rated temporary services, see freestanding & temporary transockets, U-10.
SERVICE TERMINATION IN A TRANSOCKET

FREESTANDING & TEMPORARY SERVICE
1Ø, 120/240 VOLTS, 400-800A
ALL 3Ø VOLTAGES, 400-3000A

Obtain accept for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17 & D-15).
2. Company listed transformer rated meter socket, supplied with transockets (see D-17).
3. Service lateral conduit (Raceway preferred see Notes 1, 2, & 3).
4. 4” galvanized rigid or IMC 90° elbow with 24” radius.
5. Insulated conduit bushing (see Note 4).
7. Galvanized steel framing channel, 1-5/8” x 1-5/8” x 12 Ga.
8. Two conduit supports solidly attached to frame (above grade).
9. 3” galvanized rigid with galvanized end cap (see Note 5).
10. Concrete footing (12” min. hole size).

Company furnishes and installs:
11. Service lateral with compression lug terminations (600A +).
12. Watthour meter, current transformers, & associated meter wiring.

Notes:
1. Galvanized or rigid IMC with threaded ends and fittings. Metallic conduit shall be bonded. For 400A services, one 4” conduit with 24” bend radius is required. For services larger than 400 Amps, consult the local company office for the number and size of service lateral conduits.
2. Conduits to be grouped at end furthest from the termination compartment to allow for service lateral bending. Reference U-4 for conduit details.
3. For 400-1600 Amp services, a Company listed cable raceway is preferred (shown as dashed line below). The cable raceway can be used in place of Item 3 above (see D-16).
4. Service lateral conduit shall have a temporary waterproof end cap to prevent the accumulation of water, ice, and other foreign matter from inside the conduit.
5. As an alternative to Item 9 above, 4” x 4” x 3/8” galvanized steel angle may be used.
6. For concrete encased service lateral, refer to U-12, U-20/21, and U-22/23.
7. Temporary services may also be constructed out of wood, refer to U-11.

Single phase, 3-wire transocket shown.
SERVICE TERMINATION IN A TRANSOCKET
FREESTANDING FOR FARM SERVICES ONLY
1Ø, 120/240 VOLTS, 400-800A
Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17 & D-15).
2. Company listed transformer rated meter socket, supplied with transocket (see D-17).
3. Service lateral conduit (see Notes 1, 2, & 3).
4. 4" galvanized rigid or IMC 90° elbow with 24" radius.
5. Insulated conduit bushing (see Note 4).
7. Galvanized steel framing channel, 1-5/8" x 1-5/8" x 12 Ga.
8. Two conduit supports solidly attached to frame (above grade).
9. Post, 6" x 6", pressure treated for ground contact (preservative retention of .60 # per cu. ft.)
10. Wood, 2X, pressure treated for above ground use (preservative retention of .40 # per cu. ft.)
11. Concrete footing (12" min. hole size).

Company installs and furnishes:
12. Service lateral with compression lug terminations (600A +).
13. Watthour meter, current transformers, & associated meter wiring.

Notes:
1. Galvanized rigid or IMC with threaded ends and fittings. Metallic conduit shall be bonded. For 400A services, one 4" conduit with 24" bend radius is required. For services larger than 400A, consult the local Company office for number and size of the service lateral conduits.
2. Conduit to be group at end furthest from the termination compartment to allow for service lateral bending.
3. For 1Ø 400 – 800A services, a Company listed cable raceway is preferred. The cable raceway can be used in place of Item 3 above (see D-16 for approved raceways). Raceways shall extend 18" to 27" below final grade.
4. Service lateral conduit shall have a temporary waterproof end cap to prevent the accumulation of water, ice, and other foreign matter from inside the conduit.
5. Plywood, Particleboard, or OSB are not acceptable for use with this structure. Only 2X shall be used.
SERVICE TERMINATION IN A TRANSOCKET
OUTDOOR CONCRETE ENCASED LATERAL
1Ø, 120/240 VOLTS, 400-800A
ALL 3Ø VOLTAGES, 400-4000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer Furnishes and Installs:
1. Company listed transocket (see M-17, D-15, & Note 1).
2. Company listed transformer rated meter socket, supplied with transocket (see D-17).
3. Service entrance conduit and conductors.
4. Metallic conduit shall be bonded.
5. Raceway, preferred, 1600A Maximum (see D-16).
6. Service lateral conduit (see Notes 2 & 3).
7. Two conduit supports solidly attached to building (above grade).
8. Solid bar.

Company Furnishes and Installs:
10. Service lateral with compression lug terminations (600A +).

Notes:
1. The cable trough compartment (for 400-4000A services) is for the Company’s service lateral cables only. This compartment may be on the left side, contact your manufacturer or distributor.
2. Galvanized rigid or galvanized intermediate conduit with threaded ends and threaded fittings at the transocket are required. The smooth end shall extend down to grade. For 400A services, one 4” conduit with 24” bend radius is required. For larger services, consult the local Company office for the proper number and size of the conduits. A Company listed cable raceway is the preferred method of installation. The cable raceway can be used instead of Item 4 above (see D-16 for approved raceways). Raceways shall extend 3” to 6” below final grade.
3. Conduits to be grouped at the end furthest from the termination compartment to allow for service lateral bending (see Note 1). Reference U-4 for conduit details.
SERVICE TERMINATION IN A TRANSOCKET
OUTDOOR DIRECT BURIED LATERAL
1Ø, 120/240 VOLTS, 400-800A
ALL 3Ø VOLTAGES, 400-1200A
Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17, D-15 & Note 1).
2. Company listed transformer rated meter socket, supplied with transocket (see D-17).
3. Service entrance conduit and conductors.
4. Metallic conduit shall be bonded.
5. Raceway, preferred, 1600A Maximum (see D-16).
6. Service lateral conduit (see Notes 2 & 3).
7. Two conduit supports solidly attached to building (above grade).
8. Solid bar.

Company furnishes and installs:
9. Service lateral with compression lug terminations (600A +).
10. Watthour meter, current transformers, & associated meter wiring.

Notes:
1. The cable trough compartment (for 400-1200A services) is for the Company’s service lateral cables only. This compartment may be on the left side, contact your manufacturer or distributor.
2. Service lateral conduit shall have a temporary waterproof end cap when installed to prevent the accumulation of water, ice, and any other foreign material inside the conduit.
3. Galvanized rigid or galvanized intermediate conduit with threaded ends and threaded fittings at the transocket are required. For 400A services, one 4” conduit with 24” bend radius is required. For larger services, consult the local Company office for the proper number and size of the conduits. A Company listed cable raceway is the preferred method of installation. The cable raceway can be used in place of Item 4 above (see D-16 for approved raceways). Raceways shall extend 18” to 27” below final grade.
4. Conduits to be grouped at the end furthest from the termination compartment to allow for service lateral bending (see Note 1). Reference U-4 for conduit details.
SERVICE TERMINATION IN A TRANSOCKET

PADMOUNTED – DIRECT BURIED OR CONCRETE ENCASED LATERAL – BOTTOM ENTRY AND EXIT

ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-4000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17, D-16 & Note 1).
2. Company listed transformer rated meter socket, supplied with transsocket (see D-17).
3. 4” 90° elbow with 36” radius (see Note 1).
4. Insulated conduit bushing (see Note 3).
5. Service entrance conduit.
6. Padmount base (see Note 4).

Company furnishes and installs:
7. Service lateral with compression lug terminations (600A +).
8. Watthour meter, current transformers, & associated meter wiring.
9. Conduit package (if concrete encased, not shown, see note 1).

Notes:
1. Schedule 40 PVC, galvanized rigid, or IMC conduit shall extend to be slightly higher than level with the top of the concrete pad (no more than 3” higher). If used, metallic conduit shall be bonded. For 400A services, one 4” conduit with 24” bend radius is required. For services larger than 400 amperes contact the We Energies job representative for approval and number of conduits required. If the service lateral is to be concrete encased, leave an appropriately sized window in the pad. Reference U-4 for conduit details.
2. Conduits to be grouped to allow for proper service lateral bending (see Note 1). Reference U-4 for conduit details. Only Company cable is allowed in this area.
3. Service lateral conduit shall have a temporary waterproof end cap to prevent the accumulation of water, ice, and other foreign matter from inside the conduit.
4. The concrete pad shall be 6” thick and 3-5” wider and deeper than the transocket.
5. The 90° elbows shall be oriented to face the transformer. See layout drawing provided by the Company.
6. Knockouts on the bottom of the termination side of the rear or back of the enclosure may be used for customer wire.
SERVICE TERMINATION IN A TRANSOCKET
FIRST FLOOR INSTALLATION, CONCRETE ENCASED LATERAL
1Ø, 120/240 VOLTS, 400-800A
ALL 3Ø VOLTAGES, 400-3000A
Obtain acceptance from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17, D-15, & Note 1).
2. Company listed transformer rated meter socket, supplied with transocket (see D-17).
3. Service lateral conduit (see Note 2).
4. Continuous concrete envelope with 3" of concrete on all sides (see Note 2).
5. 4" I.D. 90° bend with 36" minimum radius (see Note 2).
6. Steel reinforcing rods, 5/8" x 2'.
7. Insulated bushing & temporary watertight end cap.
8. Solid bar.

Company furnishes and installs:
9. Service lateral with compression terminations (600A +), conduit, coupling, & concrete envelope.
10. Watthour meter, current transformers, & associated meter wiring.

Notes:
1. The cable trough compartment (for 400-1200A services) is for the Company's service lateral cables only. This compartment may be on the left side, contact your manufacturer or distributor.
2. Galvanized rigid or galvanized intermediate conduit with threaded ends, or rigid nonmetallic schedule 40 PVC is acceptable. For 400A services, one 4" conduit and 90° elbow with 24" bend radius is required. For larger services, consult the We Energies job representative. Reference U-4 for conduit details.
3. The We Energies 8’ rule applies to all indoor service installations. See Note 3 on U-2 for details.
SERVICE TERMINATION IN A TRANSOCKET
FIRST FLOOR INSTALLATION, DIRECT BURIED LATERAL
1Ø, 120/240 VOLTS, 400-800A
ALL 3Ø VOLTAGES, 400-3000A
Obtain acceptance from the Company

Customer furnishes and installs:
1. Company listed transocket (see M-17, D-15, & Note 1).
2. Company listed transformer rated meter socket, supplied with transocket (see D-17).
3. Service lateral conduit (see Note 2).
4. Continuous concrete envelope with 3” of concrete on all sides (see Note 2).
5. 4” I.D. 90° bend with 36” minimum radius (see Note 2).
6. Insulated bushing & temporary watertight end cap.

Company furnishes and installs:
7. Watthour meter, current transformers, & associated meter wiring.
8. Service lateral with compression lug terminations (600A +) (not shown).

Notes:
1. The cable trough compartment (for 400-1200A services) is for the Company’s service lateral cables only. This compartment may be on the left side, contact your manufacturer or distributor.
2. Galvanized rigid or galvanized intermediate conduit with threaded ends, or rigid nonmetallic schedule 40 PVC is acceptable. For 400A services, one 4” conduit and 90° elbow with 24” bend radius is required. For larger services, consult the We Energies job representative. Reference U-4 for conduit details.
3. The We Energies 8’ rule applies to all indoor service installations. See Note 3 on U-2 for details.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT

GENERAL INFORMATION

Different manufacturers offer bottom entry, bottom exit termination compartments with different termination styles.

a. Style A: Terminations run perpendicular to the face of the enclosure. The customer uses the rear portion of the terminations and conduits; the front portion of the terminations and conduits shall be reserved for the Company. The drawing below shows an example (with door removed), with the customer portion of the conduits and terminations outlined in yellow.

b. Style B: Terminations run parallel to the face of the enclosure. The customer uses only one side of the terminations and conduits; the company uses the other. Follow the documentation provided by the Company to determine which side to use. The drawing below shows an example (with door removed), with the customer portion of the conduits and terminations outlined in yellow (customer designated left side shown).
SERVICE TERMINATION IN A TERMINATION COMPARTMENT

DIRECT BURIED OR CONCRETE ENCASED LATERAL
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-18).
2. Raceway, 400-1600A max (see Note 2 & D-16).
3. Service lateral conduit, 400-3000A (see Note 3).
5. Service entrance conduit (see Note 4).
6. Service entrance conductors (see Note 5).
8. 90° metallic elbow (see Note 6).
9. Insulated conduit bushing

Company furnishes and installs:
10. Service lateral with compression lug terminations (600A +).
11. Conduit package, 1200-3000A.

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. For either direct buried or concrete encased services 1600A or less, the raceway is preferred (see D-16 for approved raceways). For direct buried service laterals, raceways shall extend 18” to 27” below final grade. For concrete encased service laterals, raceways shall extend 3” to 6” below final grade. If the raceway cannot be used, such as where the termination compartment is located in a paved area, conduit may be used (both shown on next page). Consult We Energies job representative for approval and number of conduits required.
3. 4” galvanized rigid or IMC shall have threaded ends and locknuts at the termination compartment. Set screw or threadless fittings shall not be used. For concrete encased laterals, the lower ends are not required to be threaded. Conduits are to be located on 6” centers and extend to grade level. Contact the We Energies job representative for approval and number of conduits required. Reference U-4 for conduit details.
4. If the service entrance conduits are located above the termination pads, watertight hubs or sealing locknuts are required. When the service entrance conduit enters cabinet at the top, watertight hubs are required.
5. The customer’s service entrance conductors shall leave the termination compartment as a maximum of two circuits regardless of the number of conductors per phase.
6. The ends of the galvanized rigid or galvanized intermediate 90° metallic elbows shall be threaded and threaded couplings are to be used.
   - 400A: one 4” conduit with 36” radius elbow.
   - 600 – 800A: two 4” conduits with 36” radius elbows.
NOTICE: Conduit to extend to grade

WITH SERVICE LATERAL DIRECT BURIED IN EARTH

WITH SERVICE LATERAL IN CONDUIT
SERVICE TERMINATION IN A TERMINATION COMPARTMENT

ABOVE GRADE – DIRECT BURIED OR CONCRETE ENCASED LATERAL – BOTTOM ENTRY AND EXIT

ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-19).
2. Termination pads (see Note 2).
3. Service lateral conduit 1200-3000A (see Note 3).
4. Conduit supports, 2 minimum.
5. Service entrance conduit (see Note 4).
6. Service entrance conductors (see Note 5).
8. 90° metallic elbow (see Note 6).
9. Insulated conduit bushing.

Company furnishes and installs:
10. Service lateral with compression lug terminations (600A +) (see Note 7)
11. Conduit package.

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. The termination pads are to be raised to their highest position.
3. The service lateral conduits are to be 4” galvanized rigid or IMC with threaded ends and locknuts at the termination compartment and installed in a row, 6” on center, in the front of the compartment. Set screw or threadless fittings shall not be used. If the service lateral is to be installed in a concrete encased duct package, the lower ends are not required to be threaded and shall extend to grade level. Contact the We Energies job representative for approval and number of conduits required. Reference U-4 for conduit details.
4. The customer service entrance conduits shall be located as shown on U-17 for the style of termination compartment used.
5. The customer’s service entrance conductors are to terminate on the termination pads as per U-17 and shall leave the termination compartment as a maximum of two circuits, regardless of the number of conductors per phase. They shall not share bolts with the service lateral.
6. The ends of the galvanized rigid or galvanized intermediate 90° metallic elbows shall be threaded and threaded couplings are to be used.
7. The Company service lateral conductors are to terminate on the termination pads as per U-17.
8. Raceways are not to be used with the bottom entry and exit style of installation.
NOTE: Conduit to extend to grade

WITH DIRECT BURIED SERVICE LATERAL

WITH CONCRETE ENCASED SERVICE LATERAL
SERVICE TERMINATION IN A TERMINATION COMPARTMENT
FREE STANDING – DIRECT BURIED OR CONCRETE ENCASED LATERAL – BOTTOM ENTRY AND EXIT
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A
Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-19).
2. Termination pads (see Note 2).
3. Service lateral conduit 1200-3000A (see Note 3).
4. Conduit supports, 2 minimum.
5. 90° metallic elbow, 36” radius (see Note 6).
6. Service entrance conduit (see Note 4).
7. Service entrance conductor (see Note 5).
9. Insulated conduit bushing.
10. Structure supports (see Notes 8, 9 & 10).
11. Concrete footing, 2” min. diameter.
12. Galvanized steel framing channel, 1-5/8” x 1-5/8” x 12 Ga.

Company furnishes and provides:
13. Service lateral with compression lug terminations (600A +) (see Note 7).

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. The termination pads are to be raised to their highest position.
3. The service lateral conduits are to be 4” galvanized rigid or IMC with threaded ends and locknuts at the termination compartment and installed in a row, 6” on center, in the front of the compartment. Set screw or threadless fittings shall not be used. If the service lateral is to be installed in a concrete encased duct package, the lower ends are not required to be threaded and shall extend to grade level. Contact the We Energies job representative for approval and number of conduits required. Reference U-4 for conduit details.
4. The customer service entrance conduits shall be located as shown on U-17 for the style of termination compartment used.
5. The customer’s service entrance conductors are to terminate on the termination pads as per U-17 and shall leave the termination compartment as a maximum of two circuits, regardless of the number of conductors per phase. They shall not share bolts with the service lateral.
6. The ends of the galvanized rigid or galvanized intermediate 90°, 36” radius, metallic elbows shall be threaded and threaded couplings are to be used.
7. The Company service lateral conductors are to terminate on the termination pads as per U-17.
8. To prevent water from entering the structure supports, they must be either capped or filled with concrete.
9. The supports must be spaced far enough apart to allow the service entrance conduits to pass between them. To calculate the minimum distance needed between the supports (center to center) use the formula (6 × n) +d. Where “n” is the number of conduits and “d” is the diameter of the footings.
10. For 400 – 1600 A services, use 3” galvanized rigid conduit supports. For 2000 – 3000 A services, use 4” rigid galvanized conduit supports.
11. Raceways are not to be used with the bottom entry and exit style of installation.
NOTE: Conduit to extend to grade

Direct Buried Service Lateral

Concrete Encased Service Lateral
SERVICE TERMINATION IN A TERMINATION COMPARTMENT
PADMOUNTED – DIRECT BURIED OR CONCRETE ENCASED LATERAL – BOTTOM ENTRY AND EXIT
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-4000A
Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-22).
2. Termination pads (see Note 2).
3. Service lateral conduit 400-4000A (see Notes 3 & 4).
4. Service entrance conduit (see Note 4).
5. Service entrance conductors (see Note 5).
6. 4” 90° elbow with 36” radius (see Note 8).
7. Insulated conduit bushing.
8. Concrete pad (see Note 7).

Company furnishes and installs:
9. Service lateral with compression lug terminations (600A +) (see Note 6)
10. Conduit package (if concrete encased, not shown, see Note 3).

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. The termination pads are to be raised to their highest position.
3. Schedule 40 PVC, galvanized rigid, or IMC conduit shall extend to be slightly higher than level with the top of the concrete pad (no more than 3” higher). If used, metallic conduit shall be bonded. For services 400 amperes, one 4” conduit with 36” bend radius is required. For services larger than 400 amperes contact the We Energies job representative for approval and number of conduits required. If the service lateral is to be concrete encased, leave an appropriately sized window in the pad. Reference U-4 for conduit details.
4. The customer service entrance conduits shall be located as shown on U-17 for the style of termination compartment used.
5. The customer’s service entrance conductors are to terminate on the termination pads as per U-17 and shall leave the termination compartment as a maximum of two circuits, regardless of the number of conductors per phase. They shall not share bolts with the service lateral.
6. The Company service lateral conductors are to terminate on the termination pads as per U-17.
7. The concrete pad shall be 6” thick and 3-5” wider and deeper than the termination compartment.
8. For DB services, the 90° elbows shall face the transformer. See layout drawing provided by the Company.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT
CONCRETE ENCASED LATERAL – MULTI-METERED INSTALLATIONS
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-18).
2. Service lateral conduit 400 – 3000A (see Note 2).
3. Conduit supports.
4. Service entrance conduit (see Note 4).
5. Service entrance conductors (see Note 5).

Company furnishes and installs:
7. Service lateral with compression lug terminations (600A +).
8. Conduit package.

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. For concrete encased services 1600A or less, a raceway is preferred (see D-16 for approved raceways). For concrete encased service laterals, raceways shall extend 3” to 6” below final grade. If the raceway cannot be used, such as where the termination compartment is located in a paved area, conduit may be used; see Note 3 for conduit details.
3. 4” galvanized rigid or IMC with threaded ends and locknuts at the termination compartment, the lower ends are not required to be threaded. Set screw or threadless fittings shall not be used. Conduits are to be located 6” on center and extend to grade level. Consult the local We Energies job representative for approval and number of conduits required. Reference U-4 for conduit details.
4. If the service entrance conduits are located above the termination pads, watertight hubs or sealing locknuts are required. When the service entrance conduit enter box at the top, watertight hubs are required.
5. The customer’s service entrance conductors shall leave the termination compartment as a maximum of two circuits, regardless of the number of conductors per phase.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT
BUILDING WITHOUT A BASEMENT – FIRST FLOOR INSTALLATION – MULTI-METERED INSTALLATIONS
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A
Obtain acceptance for 1Ø installations larger than 400A from the Company

Company furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-18).
2. Service lateral conduit (see Note 2).
3. 4” I.D. 90° elbow (see Note 2).
4. Steel reinforcing rods, 5/8” x 6’.
5. Conduit spacers.
6. Continuous concrete envelope with a minimum of 3” of concrete on all sides.
8. Service entrance conduit.
9. Service entrance conductors (see Note 3).
10. Temporary watertight end caps.

Company furnishes and installs
12. Service lateral with compression lug terminations (600A +).

Notes:
1. The termination compartment may be bonded to the neutral termination pad.
2. 4” galvanized rigid, galvanized intermediate, or rigid nonmetallic schedule 40 PVC conduit. If metallic conduit is used, the ends shall be threaded and threaded connectors and couplings are to be used.
   • 400A: one 4” conduit with 36” radius elbow.
   • 600 – 800A: two 4” conduits with 36” radius elbows.
   • 1000 – 1200A: three 4” conduits with 36” radius elbows.
   • 1600A: four 4” conduits with 36” radius elbows.
   • For services larger than 1600A: consult the local We Energies job representative for number of conduits required.
3. The customer’s service entrance conductors shall leave the termination compartment as a maximum of 2 circuits, regardless of the number of phases per conductor.
4. Conduit for direct buried installations shall extend a minimum of 12” into undisturbed earth.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT

CONCRETE ENCASED LATERAL – LOCATED BELOW GRADE
*CONDUIT AND MANHOLE SYSTEM ONLY*
ALL 1Ø VOLTAGES, 400-800A
ALL 3Ø VOLTAGES, 400-3000A

Obtain acceptance for 1Ø installations larger than 400A from the Company

Customer furnishes and installs:
1. Company listed termination compartment (see Note 1 & D-20).
2. Service lateral conduit (See Note 2).
3. Terminal adapter with locknuts and insulated bushing.
4. Steel reinforcing rods, 5/8” x 6’.
5. Continuous concrete envelope with a minimum of 3” of concrete on all sides.
7. Service entrance conductors (see Note 3).
8. Temporary watertight end cap.

Company furnishes and installs:
10. Service lateral with compression lug terminations (600A +).

Notes:
1. The termination compartment may be bonded to the neutral termination pad. Only termination compartments listed on Page D-20 as for use below grade are to be used. These units have termination pads that are adjustable to obtain the 24” min. from the top of the pad to the bottom of the conduits.
2. 4” rigid nonmetallic schedule 40 PVC conduit per NEMA standard TC-2. Conduits are to be arranged horizontally and 6” on center as shown. Consult the local We Energies job representative for approval and number of conduits required.
3. The customer’s service entrance conductors shall leave the termination compartment as a maximum of two circuits, regardless of the number of conductors per phase.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT

FREE STANDING SWITCHGEAR – LOCATED BELOW GRADE – FOR AREAS SERVED BY CONDUIT AND CABLE ONLY
ALL 3Ø VOLTAGES, 2000-4000A
REQUIRES COMPANY APPROVAL (SEE NOTE 5)

Customer furnishes and installs:
1. Completely enclosed termination compartment with rigidly supported bus bars, located and drilled as shown (see Notes 1 through 4).
2. 4” schedule 40 PVC conduit, concrete encased. (see Note 8).
3. Temporary watertight end caps.
4. Reinforcing rods (epoxy coated re-bar).

Company furnishes and installs:
5. Service lateral conduit and concrete envelope (not shown). We Energies does not lace cables.
6. Service lateral with compression lug terminations (not shown).

Notes:
1. Rigidly supported barriers shall separate the termination compartment from other compartments.
2. Front panels are to be removable, sealable, have hasps for padlocking, and when removed shall leave a clear and unobstructed opening exposing only the service lateral termination area. All other panels shall be installed in their original position on the switchgear prior to We Energies terminating cables.
3. Only the service lateral conductors are allowed in this termination compartment. The grounding electrode conductor shall NOT pass through, or terminate in, this compartment; nor shall bonding of the neutral and grounding buses be done in this compartment.
4. Bus work shall be labeled in each compartment to easily identify phases.
5. Send copies of the drawings of the switchgear termination and metering compartments to the local We Energies job representative for acceptance prior to any construction.
6. The dimension shown is from the bottom of the conduit to the top hole in the bus bar. For 3Ø, 3 wire installations, omit the neutral bus and use the 40” dimension.
7. See pages M-20 and M-21 for metering details.
8. Reference U-4 for conduit details and width table. Conduit shall be installed so the duct package width is parallel with the bus. See the drawings below.
SERVICE TERMINATION IN A TERMINATION COMPARTMENT
FREE STANDING SWITCHGEAR – LOCATED ON FIRST FLOOR OR ABOVE
ALL 3Ø VOLTAGES, 2000-4000A
REQUIRES COMPANY APPROVAL (SEE NOTE 5)

Customer furnishes and installs:
1. Completely enclosed termination compartment with rigidly supported bus bars, located and drilled as shown (see Notes 1 through 4).
2. 4" schedule 40 PVC conduit, concrete encased. (see Note 8).
3. Temporary watertight end caps.
4. Reinforcing rods (epoxy coated re-bar).
5. 4" schedule 40 PVC, 90° elbows with 36" radius.

Company furnishes and installs:
6. Service lateral conduit and concrete envelope (not shown). We Energies does not lace cables.
7. Service lateral with compression lug terminations (not shown).

Notes:
1. Rigidly supported barriers shall separate the termination compartment from other compartments.
2. Front panels are to be removable, sealable, have hasps for padlocking, and when removed shall leave a clear and unobstructed opening exposing only the service lateral termination area. All other panels shall be installed in their original position on the switchgear prior to We Energies terminating cables.
3. Only the service lateral conductors are allowed in this termination compartment. The grounding electrode conductor shall NOT pass through, or terminate in, this compartment; nor shall bonding of the neutral and grounding buses be done in this compartment.
4. Bus work shall be labeled in each compartment to easily identify phases.
5. Send copies of the drawings of the switchgear termination and metering compartments to the local We Energies job representative for acceptance prior to any construction.
6. The dimension shown is from the top of the conduit to the lower hole in the bus bar. For 3Ø, 3 wire installations, omit the neutral bus and use the 40" dimension.
7. The preferred termination of service laterals is on the outside of a building (or structure). Service laterals that terminate inside of a building shall terminate immediately upon entering as shown in this manual. The raceway for service laterals under or through a building shall not extend longer than 8' after penetrating the outside wall; this is a We Energies requirement (see U-2 Note 3) in addition to the State of Wisconsin requirement.
8. Where the termination compartment is located on a mezzanine, a continuous duct package must be installed with a maximum distance of 14' from final grade to the bottom of the termination compartment.
9. Reference U-4 for conduit details and width table. Conduit shall be installed so the duct package width is parallel with the bus. See the drawings below.
COMMUNICATION TOWERS
POLICY ON SERVICES

NEW SERVICES

We Energies policy is to provide one electric service to each tower site. This service must be sized to accommodate present and future carriers that have space on the tower with a meter position for each carrier. Applications for service to tower sites shall include information on each tower’s capacity (i.e. total number of carriers the tower will accommodate). This information is a requirement for electric service to the tower site.

If additional carriers are allowed space on the tower and the size of the service or number of meter sockets need to be increased, the owner shall be responsible for increasing the size of the service and/or the number of meter sockets. Additional services are not permitted.

EXISTING SERVICES

For existing towers, the owner will be required to install a multi-position metering bank to serve the number of additional tenants that may attach to the tower in the future.

Existing services installed prior to Friday, January 19, 2001 will be allowed to remain and after this date, additional service to a tower site must meet the requirements of the new services rule above.
COMMUNICATION TOWERS

SERVICE TERMINATION IN A FREE STANDING MULTI-POSITION METER SOCKET – DIRECT BURIED LATERAL
1Ø 120/240 VOLTS, 0-800A
0-200A PER METER, 2-6 METERS

Customer furnishes and installs:
1. Service entrance conduit.
2. Service entrance conductors.
3. Metallic conduit shall be bonded.
4. Company listed 2 – 6 position meter socket (see Notes 1 & 4 and sheet D-8).
5. Service lateral conduit (see Note 2).
6. Insulated conduit bushings (see Note 3).
7. 4” galvanized rigid or IMC 90° elbow with 24” radius.
8. Galvanized steel framing channel, 1-5/8” x 1-5/8” x 12 Ga.
10. 3’ galvanized rigid with galvanized end cap (see Note 5).
11. Concrete footing (12” minimum hole size).

Company furnishes and installs:
13. Watthour meters.

Notes:
1. Separate cable compartment is provided for the Company’s service lateral cables only.
2. 4” galvanized rigid or galvanized intermediate conduit with threaded ends and fittings. Consult local We Energies job representative for the proper number of service lateral conduits.
3. Service lateral conduits shall extend underground to a point outside of fenced area and have temporary waterproof end caps to prevent the accumulation of water, ice, and other foreign matter inside the conduits.
4. Each meter position shall be marked on the outside of the socket or by the breaker (if available) with the address of the unit served. If the marking is on the outside of a removable cover, it shall also be marked on the inside of the meter socket in a visible location. This marking shall also be placed on the corresponding distribution panel(s). The marking shall be a permanent label with 1/2” block letters and may consist of individual self-stick letters or numbers, suitable for the location so as to be considered permanent.
5. As an alternative item to Item 10 above, 4” x 4” x 3/8” galvanized steel angle may be used.