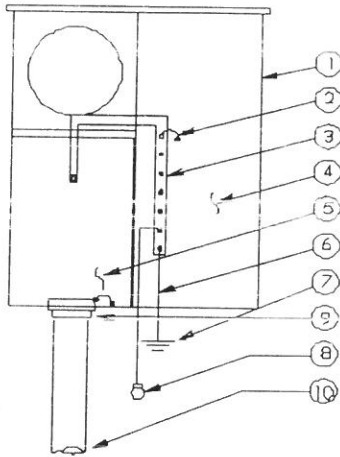




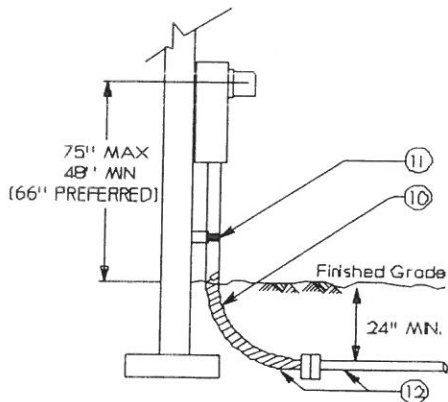
# TYPICAL UNDERGROUND RESIDENTIAL METER INSTALLATION

1 Ph, 3W, 120/240 VOLT

## FRONT VIEW



## SIDE VIEW



24" Min. below finished grade to top of conduit

Permits and inspections are required. Please contact the governing inspection agency in your area. This is a list of material for a normal residential meter installation. It is not intended to be all inclusive but gives the more common requirements. All equipment shall comply with EUSERC requirements and all specifications found in the APS Electric Service Requirements Manual (ESRM).

1) Meter socket, breaker compartment and pull section must be raintight equipment. Meter socket jaws or clips shall be free of foreign material (mud, paint, plaster, etc.). **RINGLESS METER SOCKETS ARE NOT ACCEPTABLE.** See paragraph 303.8, page 29 of ESRM for socket configuration.

2) Install a main bonding jumper from isolated neutral to equipment grounding bus.

3) Insulated neutral landing block.

4) Customer's breaker compartment.

5) APS pull section.

6) The ground wire (#4 bare solid copper) shall be continuous from the equipment grounding bus to an approved grounding electrode system in compliance with NEC Article 250. The ground wire must be properly supported and attached to the building at 24" intervals.

7) Approved grounding electrode system.

a) 5/8" x 8' long ground rod and approved clamp. Entire length of ground rod to be below grade

b) 20' of bare #4 copper wire installed in concrete footer (UFER).

Note: Enough wire to reach main disconnect must extend outside concrete footer.

8) Bonding of piping systems - all interior metal piping shall be bonded to the electric grounding system. Gas piping shall be bonded on the house side of the insulated coupling. Building bond required on metal frame buildings. All bond wires to be tied to equipment grounding bus, grounding electrode, or grounding electrode conductor where of sufficient size.

9) Approved self-bonding hubs or bondable type connection required. Use largest available knock-out hub.

10) Conduit to be 2-1/2" minimum rigid steel, I.M.C. or SCH 80 PVC, supplied and installed by the Customer. Metal conduit installed below ground level shall be factory coated or shall be half-lapped with 20 mil tape suitable for its use to a total thickness of 40 mils. **UNDERGROUND RISERS INSIDE STRUCTURAL WALL SHALL BE I.M.C. OR RIGID STEEL CONDUIT.**

11) Riser shall be plumb and rigidly fastened to the wall one-third of the distance above finished grade ( $\pm 6"$ ).

### GENERAL NOTES:

1. Meter location to be specified by Company Representative
2. If more than one meter to the premise is approved by APS, Customer shall permanently identify each meter as to which portion of the premise is being served. Metal stamping or metal tag is required. Painted identification is not acceptable.

3. All trenching must be done according to APS Trenching Requirements as specified in the Trenching Agreement.
4. See reverse side for trench details.

<http://energycentral/mtrshop/publish/contents.htm>



# RESIDENTIAL METER LOOP INSPECTION CHECKLIST

NOTE: ANY "NO" RESPONSE FAILS THE METER

## CHECK APPLICABLE TO BOTH OVERHEAD AND UNDERGROUND METER LOOPS

- | YES                      | NO                       |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1) Meter Loop is in an APS approved location.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 2) Center of meter socket is 4' to 6'3" above finished grade.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 3) Metering equipment is of rain-tight design  |
| <input type="checkbox"/> | <input type="checkbox"/> | 4) Meter loop is bolted or fastened securely to wall or pole (plastic screw inserts or lag screws are not acceptable)  |
| <input type="checkbox"/> | <input type="checkbox"/> | 5) The meter enclosure is plumb and level.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 6) Approved riser hub has been installed.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 7) Main breaker of proper size for wiring and AIC rating of Service Entrance Section has been installed  |
| <input type="checkbox"/> | <input type="checkbox"/> | 8) Meter socket does not have a bypass switch and meter jaws are free of foreign materials.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 9) Neutral is not broken and is in lay-in lug in center of socket.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 10) Neutral is not broken and is in lay-in lug in center of socket.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 11) This is a ring-type meter socket.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 12) If Service Entrance Section is 200 Amp or more, is space provided for load control CT equipment on Customer's side of section?   |
| <input type="checkbox"/> | <input type="checkbox"/> | 13) No. 4 solid copper ground wire has been installed to the neutral landing lug in the Customer's breaker compartment.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 14) The ground wire has been firmly attached to the building every 24".  |
| <input type="checkbox"/> | <input type="checkbox"/> | 15) The grounding conductor has been attached to the ground rod in an approved manner per NEC 250-115  |
| <input type="checkbox"/> | <input type="checkbox"/> | 16) Customer has installed one or more of the following grounding electrodes per NEC 250-81 & 250-83: <ul style="list-style-type: none"> <li>a) 5/8" diameter X 8' long ground rod and approved clamp</li> <li>b) 20' of bare #4 copper wire attached to and installed in the footer.</li> </ul> |
| <input type="checkbox"/> | <input type="checkbox"/> | 17) Waterbond has been installed from an accessible water pipe to grounding and/or bonding point in meter can. Bond is sized per 250-94  |
| <input type="checkbox"/> | <input type="checkbox"/> | 18) Gas bond has been installed directly to neutral or bonding bus and sized per 250-94  |
| <input type="checkbox"/> | <input type="checkbox"/> | 19) If neutral landing lug is insulated from enclosure, has either a bonding jumper or a screw been installed? (Sized per 250-94)  |

## CHECK OVERHEAD METER LOOPS ONLY

- | YES                      | NO                       |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1) Service will not overhand more than 4' of roof surface.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 2) Attachment point (insulator on mast or eye-bolt on meter pole) is between 12.5' and 25' above finished grade: <ul style="list-style-type: none"> <li>a) on wood pole - 2" x 2" square washer has been installed behind eye-bolt. (If steel pole, is attachment point insulated?)</li> <li>b) on mast - if pipe is over 3' above roof, a mast guy has been installed.</li> </ul>  |
| <input type="checkbox"/> | <input type="checkbox"/> | 3) Mast is a minimum 1-1/2" rigid or I.M.C. (not PVC) for 100 amp loop and 2" for 200 amp loop, with no couplings which would be subject to strain by the service drop. Mast is plumb with wall and firmly attached   |
| <input type="checkbox"/> | <input type="checkbox"/> | 4) Point of attachment is within 12" of the weatherhead.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 5) No more than 3 service risers are served by this service drop, and these are no more than 12" apart.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 6) Service drop clearance to the ground is appropriate crossing over areas accessible to: <ul style="list-style-type: none"> <li>a) Pedestrians only ..... 12' 6"</li> <li>b) Residential driveways ..... 12' 6"</li> <li>c) Commercial areas, parking lots and areas subject to truck traffic ..... 18'</li> <li>d) Commercial areas, not subject to truck traffic .. 12' 6"</li> <li>e) Crossing over public streets, alleys, roads and commercial driveways ..... 18'</li> </ul> |
| <input type="checkbox"/> | <input type="checkbox"/> | 7) Pole is full length pressure treated and conforms to APS's specifications as outlined in the Electric Service Requirements Manual, paragraph 402.2.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 8) A minimum 24" of following wire extends from weatherhead.: <ul style="list-style-type: none"> <li>100 amp - No. 4 copper or No. 2 aluminum.</li> <li>200 amp - No. 2 copper or No. 4/0 aluminum</li> </ul>   |

## CHECK UNDERGROUND METER LOOPS ONLY

- | YES                      | NO                       |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1) Riser conduit is rigid steel, I.M.C., or SCH 80 PVC. (Is steel conduit taped below ground level?) |
| <input type="checkbox"/> | <input type="checkbox"/> | 2) All sweeps are 24" radius (min.) and factory bent.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 3) 45 bend (if used) is 8" above trench bottom of trench and 24" below finished grade                |
| <input type="checkbox"/> | <input type="checkbox"/> | 4) If a 90 bend is used, it is level with bottom of trench and 24" below finished grade.             |
| <input type="checkbox"/> | <input type="checkbox"/> | 5) A minimum 2-1/2" riser pipe has been installed.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 6) Conduit has been installed 2' past any proposed concrete or structures.                           |

## CHECK METER PEDESTALS

- | YES                      | NO                       |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1) The service cable pull section shall not be blocked in any manner.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 2) A 2' x 2' concrete slab has been poured around the pedestal.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 3) Customer has provided one or two - 2-1/2" sweeps into pedestal   |
| <input type="checkbox"/> | <input type="checkbox"/> | 4) No Customer wires are located within the APS portion of meter can (includes ground electrode conductor).   |
| <input type="checkbox"/> | <input type="checkbox"/> | 5) Customer has installed one or more of the following grounding electrodes per NEC 250-81 & 250-83: <ul style="list-style-type: none"> <li>e) 5/8" diameter x 8' long ground rod and approved clamp</li> </ul> |