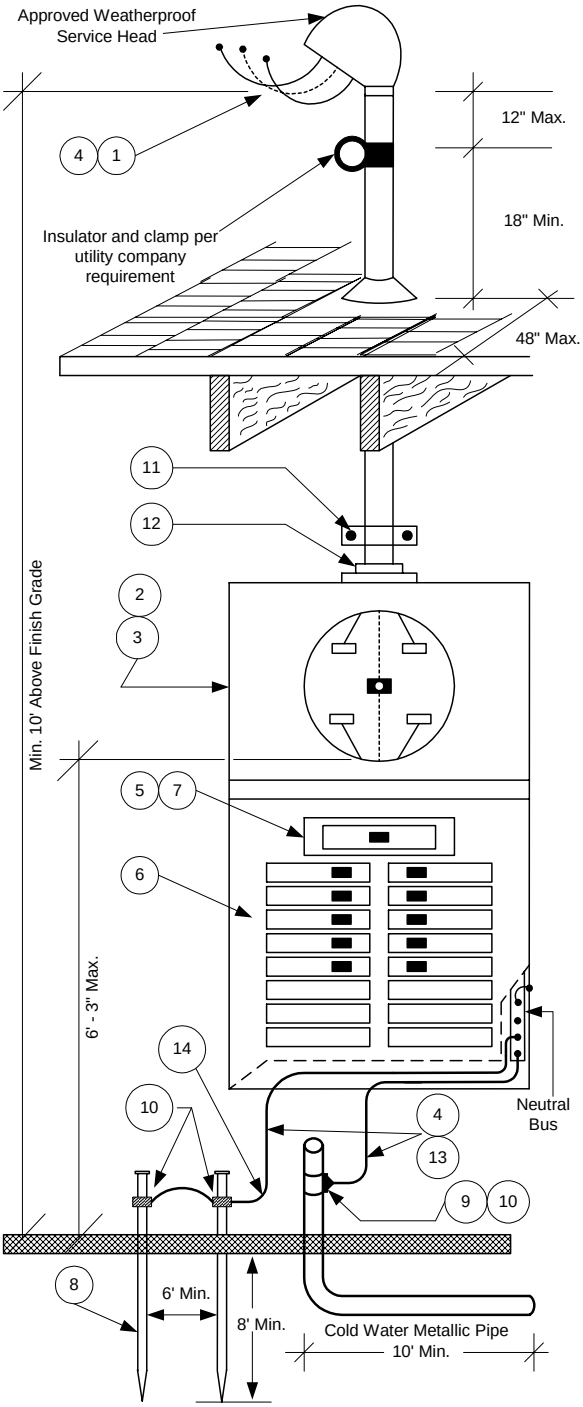
Electrical Details

Single Family Dwelling



1. Service entrance conductors shall be listed or marked for wet location and sunlight resistant. Minimum of 18" of free conductor is required for attachment to service drops.
2. For service equipment/meter location and height, consult with the local utility company.
3. For underground service requirements and conduit size, consult with local utility company. (Conduit shall be listed to satisfy the requirements of the Electrical Code).
4. Minimum size of service entrance conductors and grounding electrode conductors.

Service or feeder rating	Service or feeder conductor THW/THWN-Copper	Grounding electrode and bonding conductor-Copper
100A	#4	#8
200A	#2/0	#4
400A	400 MCM	#1/0

5. For single-family dwelling, the service disconnecting means shall have a rating not less than 100 amperes,120/240 volts single phase, three-wire.
6. Minimum required branch circuits:
   a) 15A or 20A circuit(s) for general lighting and receptacles. The number of branch circuits is determined by desired use and the total square footage of the dwelling. Branch circuit feeding the receptacle in the bedroom shall be protected with an Arc Fault circuit breaker.
   b) Two or more small appliance branch circuits for the kitchen counter top and dining room.
   c) A dedicated 20-ampere branch circuit for the bathroom receptacles.
   d) Additional branch circuits may be required for dishwasher and garbage disposer.
   e) A dedicated 20-ampere branch circuit for laundry.
7. Main disconnecting means may be omitted if there are no more than six disconnecting means (circuit breakers/fuses) per service.
8. A metal underground water pipe shall be supplemented by an additional electrode as listed below:
   a) Steel reinforcing bars (#4 or larger) for structural foundation, or
   b) Two ground rods not less than 8 feet in length (each), minimum 6 feet apart. Rods shall be installed such that at least 8 feet of length is in contact with the soil. For single ground rod installation, it will be the responsibility of the homeowner/contractor to provide a test for verification of 25 ohms or less resistance to ground.
9. Grounding connection to the interior metal water pipe shall be made within the first five feet of the main water pipe entrance to the building.
10. Listed and accessible grounding clamp. If buried in the earth, the clamp shall be approved for direct burial.
11. Service raceway to be secured within 36" of box and not to exceed 10'-0" intervals on service conduit.
12. Threaded boss or hub.
13. Grounding electrode conductor shall be protected from physical damage, if necessary by conduit, armored cable or other means.
14. Where the supplemental electrode is a rod, pipe, or plate electrode, the portion of the bonding jumper that is the sole connection to the supplemental grounding electrode shall not be required to be larger than 6 AWG copper wire or 4 AWG aluminum wire.

GENERAL NOTES:

A. All 125-volt, single-phase, 15 and 20 ampere receptacles installed in the following locations shall have GFCI protection for personnel: *bathrooms, garages, outdoors, crawl spaces, unfinished basements, kitchens (countertops), and wet bar sinks*.

B. Nonmetallic sheathed cable (NM, NMC) with grounding conductor is permitted for installation in single-family dwellings where it is not subject to physical damage (concealed in walls, attic space, etc.)

C. All electrical equipment shall be listed.

D. A hard-wired smoke alarm with a battery back up shall be installed in each sleeping room and at a point centrally located in the corridor or area giving access to each separate sleeping area.

E. Switch lighting outlets required for all habitable rooms, hallways, stairways, garages, attics, basements, and entrances and exits on exterior of building.

F. All outlets installed in dwelling unit bedrooms shall be protected by an ARC-Fault circuit interrupter listed to provide protection to the entire branch circuit.