Service Equipment

208-240Volt Overhead Clearances

- ☐ Above walkway (porch)–10ft. . . . . .**Fig. 33** [230-24b, 90-2c, utility]
- ☐ Aboveground (general)–12ft. . . . . [230-24b, 90-2c, utility]
- ☐ Driveway–12ft. . . . . .[230-24b, 90-2c, utility]
- ☐ Roadway–18ft. . . . . .[230-24b, 90-2c, utility]

Service conductor height requirements.

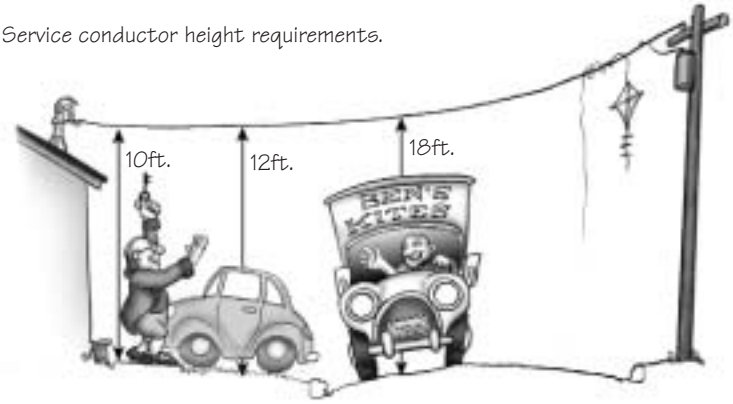


Fig. 33 Overhead Service Clearances

Clearance to Roof and Openings

- ☐ Pitch of <4-in-12 requires min. 8ft. . . . . .**Fig. 34** [230-24a]
- ☐ Pitch of ≥4-in-12 requires min. 3ft. . . . . .**Fig. 34** [230-24aex.2]

Fig. 34 Service Conductors over a Roof

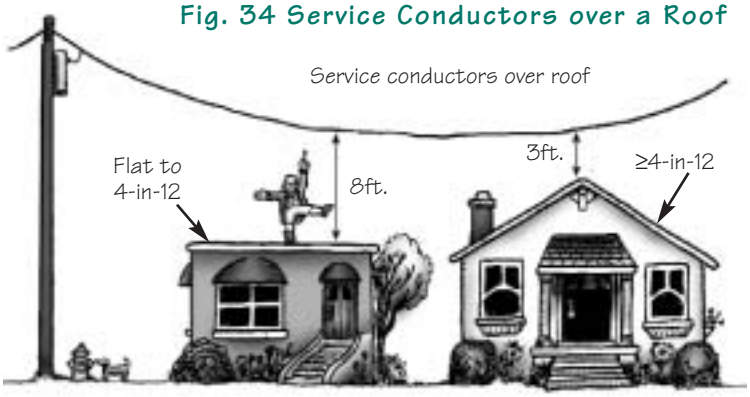
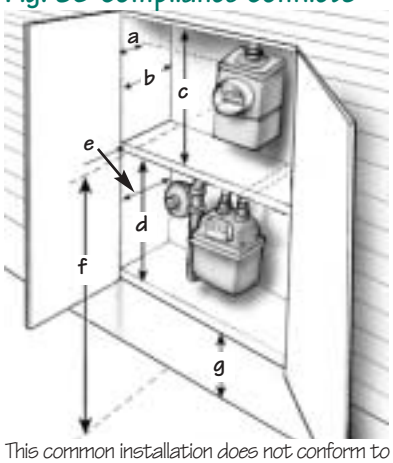


Fig. 38 Compliance Conflicts



This common installation does not conform to NEC, but might be acceptable to the AHJ.

Gas and Electric Service Clearances		
•	Example	Local
a	15"max.	
b	18"–19"	
c	30" min.	
d	32"min.	
e	17"–19"	
f	75"max.	
g	15"min.	

Use this table to help research the specific requirements of the utility or building department in your area. The example dimensions are from a Northern California utility.

Fig. 39 Clearances Around Service Equipment

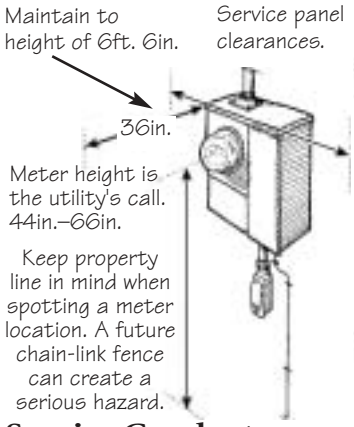
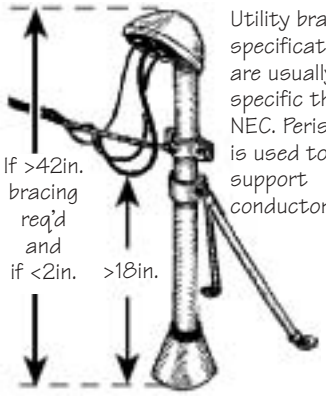


Fig. 40 Supporting Periscope



Utility bracing specifications are usually more specific than NEC. Periscope is used to support conductors.

Service periscope bracing

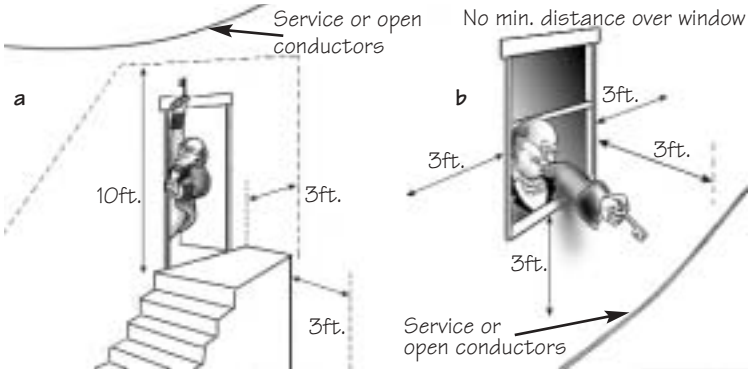
Service Conductors

General

- ☐ Min. 100amp for single-family dwelling (SFD) . . . . . .[230-79c]
- ☐ Wire siz min. for SFD #4CU or #2AL . . . . . .**ET-23** [t310-15b6]
- ☐ Identify neutral at both ends . . . . . .[200-6b]
- ☐ Aluminum conductors must terminate properly . . . . . .[110-14,110-3b]
- ☐ Side and lower clearance to operating window 3ft. . . . . .**Fig. 35** [230-9]

☐ 3ft. clearance to building openings except above window . . .**Fig. 35b** [230-9]
☐ 3ft. clearance to doors, porches, balconies, ladders, stairs, etc. .**Fig. 35a** [230-9]
☐ 18in. min. ok if ≤6ft. of conductors runs across roof & weatherhead is <4ft. from roof edge . . . . . .**Fig. 36** [230-24a ex.3]

Fig. 35a,b Open Conductor Clearances Around Buildings



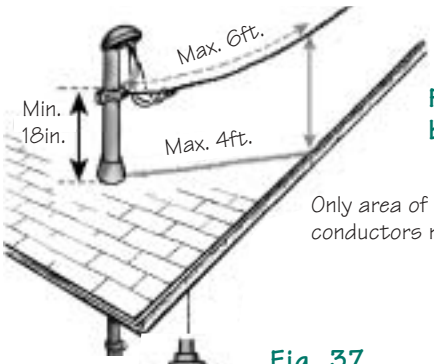
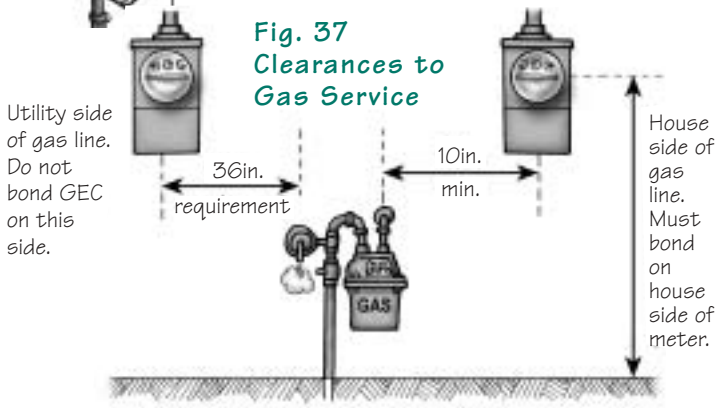


Fig. 36 Conductors by Roof Edge

Only area of roof where service conductors may be <3ft. over roof.

Fig. 37 Clearances to Gas Service



☐ Min. 18in. of conductor at weatherhead . . . . . .[utility]
☐ Height requirements . . . . . .**Fig. 33,34,35** [utility]
☐ Underground . . . . . .**ET-2** [utility]
☐ Provide grounding electrode conductor & bonding . . . .**see page 6** [250-24a]

Service Riser/Lateral

☐ Clamp conduit within 3ft. of service box . . . . . .[346-12]
☐ Plumbing pipe or fittings not permitted . . . . . .[110-3b]
☐ Periscope–service riser above roof supporting utility drop:
- 1¼in. rigid steel min. size . . . . . .[230-28, local]
- No unsupported couplings above roof . . . . . .[local]

Meter/Main

Breakers (OCPD) serve 4 primary functions:
1. Provide a disconnecting means for a circuit
2. Protect against overloading of conductors, i.e. 40amps on # 12AWG
3. Protect against short circuit
4. Clear ground faults

☐ Service disconnect–6 handles max. . . . . .[230-71]
☐ Lighting and appliance panels require a max. of 2 disconnects . . . .[384-16a]
☐ All tenants must have access to their breakers . . . . . [230-72c]
☐ Clearances–to fences, walls, or any obstruction . . . . . .**Fig. 39** [110-26]
☐ Max. height of breakers or switches 6ft. 7in. . . . . .[380-8a]
☐ Meter height 44in.-66in. . . . . .**Fig. 39** [utility, local]
☐ Verify location and hookup fees with utility company . . . . . .[utility]
☐ Labeled "Suitable as Service Equipment" . . . . . .[230-66]
☐ Breakers match make and model per panel labeling . . . . . .[110-3b]
☐ Interior panels req. means of illumination . . . . . .[110-26d]

Subpanels & Fuse Boxes

☐ Neutral must be isolated from equipment grounds except at service . . . . . .[250-24a5, 250-142b, 384-20]
☐ Breakers and fuses shall be clearly and permanently labeled . .[110-22, 384-13]
☐ Breakers–make and model per manufacturer's labeling . . . . . .[110-3b]
☐ 240volt loads (line to line) require approved handle-tie breakers . . . . . .**Fig. 89** [240-20b2]
☐ Unused openings effectively closed (not taped) . . . . . .[110-12a, 373-4]
☐ Clearances in front of panel–30in. wide x 36in. deep . . . . . .[110-26a]
☐ Breakers may not be located in clothes closet or bathroom .**Fig. 83** [240-24d,e]
☐ Max. breaker height–6ft. 7in. . . . . .[380-8a]
☐ Plug fuses where over-fused must be replaced with "S" type adapters and fuses . . . . . .**Fig. 58** [240-51b]
☐ Split neutral bar is not to be modified unless approved by AHJ . .[manu., UL]