Electric Distribution Engineering Manual | 43, Joint Use

43-110 Communication Attachments

Revised August 4, 2020 | Required Use

43-110 Communication Attachments

- Article II of the Pole License Agreement between Consumers Energy and the communication company clearly states it is the Licensee's responsibility to ensure the communication installations comply with all codes, laws, and regulations. Therefore, the Licensee must comply with the latest version of the National Electrical Safety Code that has been adopted by the Michigan Public Service Commission.
- Figure 43-110-1 through 43-110-5 are exhibits from the Pole License Agreement showing structure drawings and required clearances.
- Section 43-105 responds to items raised by some communication licensees.

> **CAUTION**
> In the Communication Workers Safety Zone do not install any equipment per NESC 238E except luminaries and traffic signals.

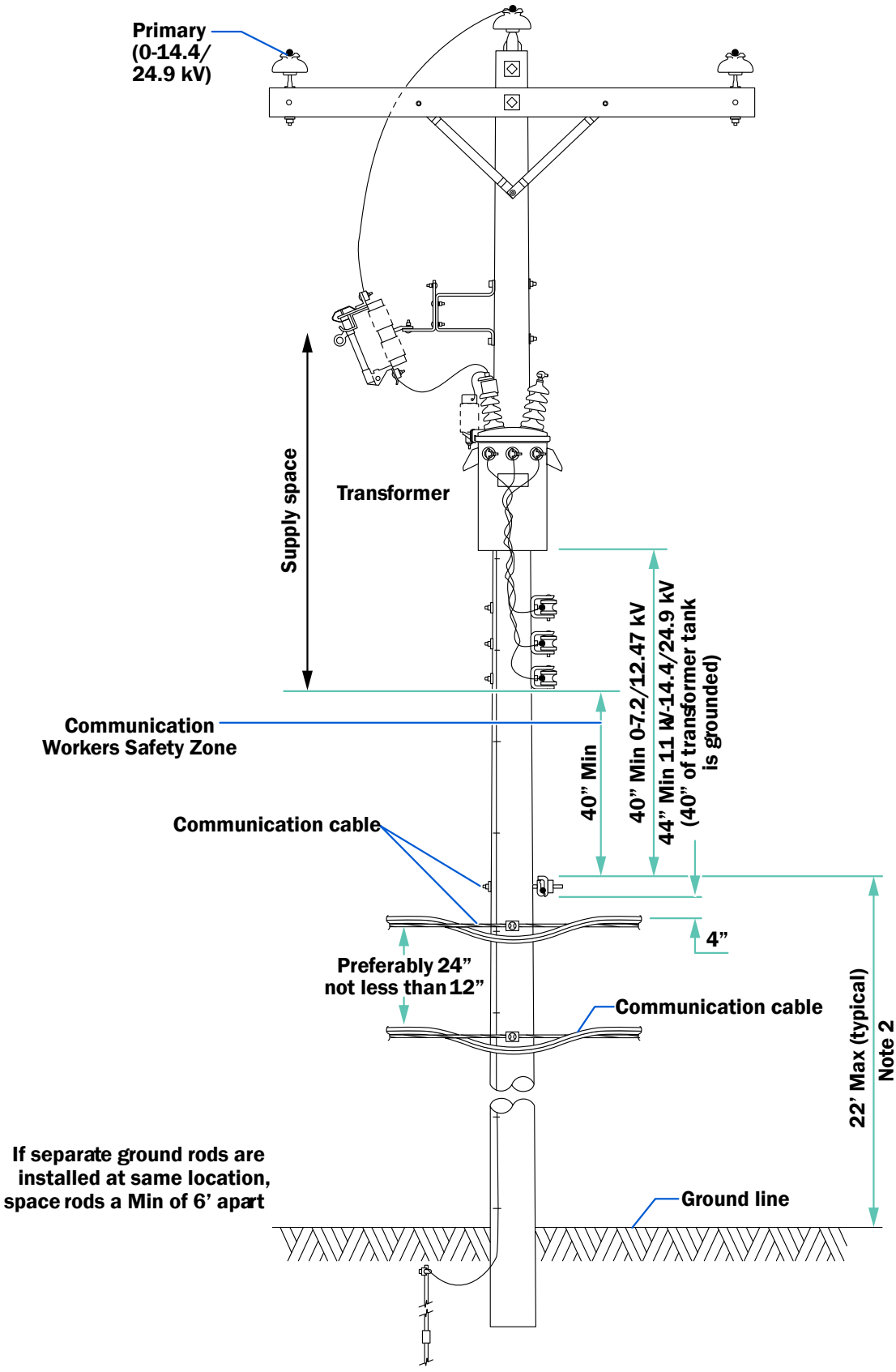


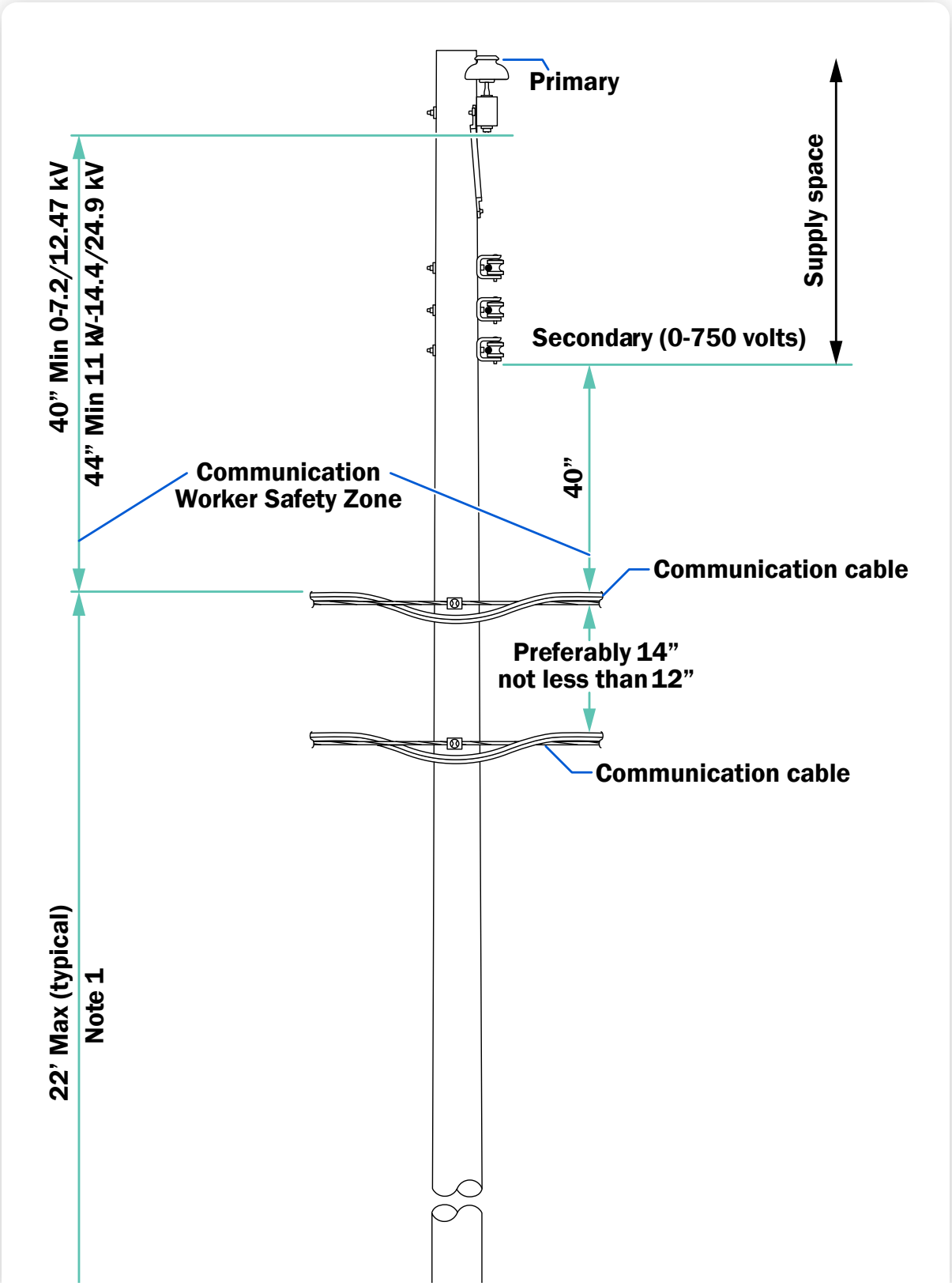
FIGURE 43-110-1 Communication Cable Spacing on Transformer or Isolator Pole—Exhibit

Notes

1. Install no equipment on a transformer pole with a separate secondary ground. See section 40-210, Note 5.

2. Actual contact height is subject to terrain and National Electrical Safety Code (NESC) ground clearance requirements.
3. See section 63-20 for Consumers Energy cables passing through the communication space on jointly used secondary riser structures.
4. For isolator and other platform installations, communication should maintain a 40" minimum distance below the bottom edge of the platform.
5. If separate ground rods are installed at the same location, space the rods a minimum of six feet apart.

CAUTION
In the Communication Workers Safety Zone do not install any equipment per NESC 238E except luminaries and traffic signals.



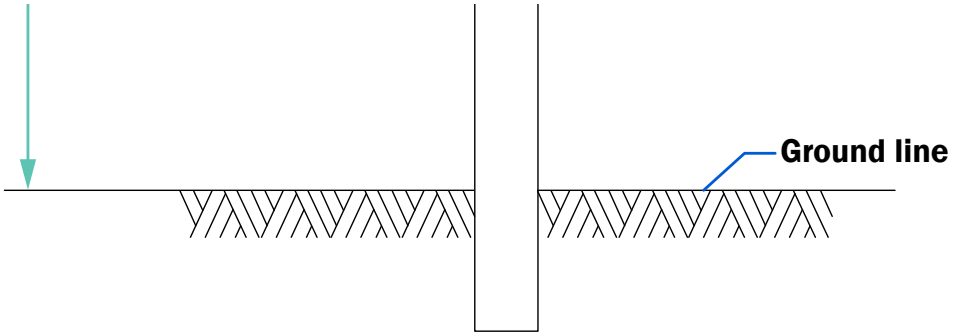


FIGURE 43-110-2 Communication Cable Spacing

Notes

1. Actual contact height is subject to terrain and NESC ground clearance requirements.

Overhead Clearances Required with Communication Cable

Primary

Supply conductors are to be sagged at the greater of the ice loaded or highest operating temperature final sag, and communication cable is to be sagged at 32° F final sag (section 7-65). Communication cable often has little sag. Use the communication attachment line of sight for mid-span clearance determination when communication company sag information is not available.

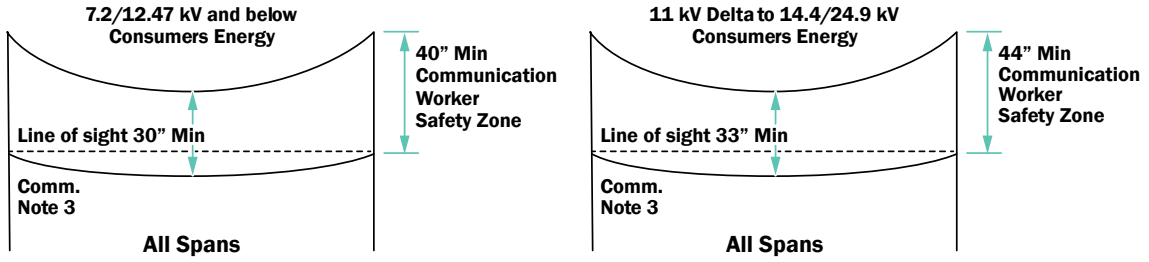


FIGURE 43-110-3 Overhead Clearances Required with Communication Cable

NOTE In primary and 46 kV spans greater than 150', the supply conductor, at 60° final sag, must be at or above the line of sight.

Secondary and Neutral

Consumers Energy conductors are to be sagged at the greater of the ice loaded or highest operating temperature final sag, and communication cable is to be sagged at 32° F final sag (section 7-65). Use communication attachment line of sight for mid-span clearance determination when communication company sag information is not available.

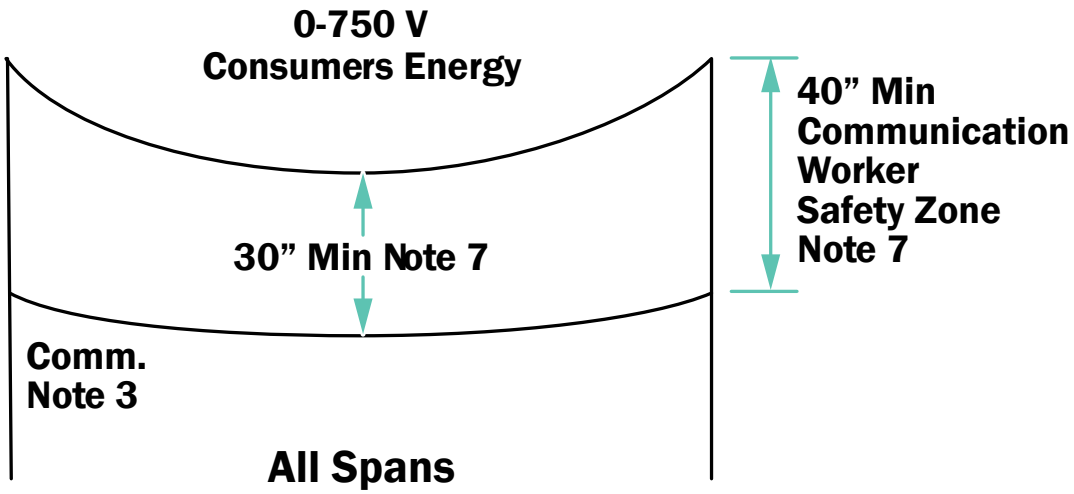


FIGURE 43-110-4 Overhead Clearances Required with Communication Cable 0–750 V

Notes

1. Use the most restrictive of the clearance requirements.
2. The spacing at a pole between messengers supporting communication cables must be not less than 12”. The clearances between the conductors, cables, and equipment of one communication utility to those of another, anywhere in the span, must be not less than four inches.
3. Clearances required above ground are the same for insulated communication cables as for guys. See **section 7-15**.
4. Refer to the applicable joint-use agreement for clearance requirements between Consumers Energy and foreign supply circuits.
5. Under build transmission lines with communication cable is only permitted on 46 kV lines. When there is a distribution circuit below the 46 kV line, the clearances shown in **figure 43-110-3** should be used. Notification to Transmission Lines Design and Standards is required using form 391 (see **section 6-85**). When there is no distribution circuit, contact the **Transmission Lines Design and Standards department** to determine whether there is sufficient pole height to go joint with communications and still provide space for future distribution needs.
6. Reduced clearances may apply for communication cables installed and maintained by Consumers Energy or its contractors. Contact the **Distribution Standards and Materials** group to discuss such installations.
7. The system neutral (but not duplex, triplex, or quadruplex) may have a reduced clearance to communication of 30” at the structure and 12” in the span where the neutral and cable messengers are bonded together (NESC Table 235-5, footnote 5).

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43-116 Streetlight on Poles—Joint with Communication Conductors

Revised August 4, 2020 | Required Use

43-116 Streetlight on Poles—Joint with Communication Conductors

CAUTION
In the Communication Worker Safety Zone do not install any equipment per NESC 238E except luminaries and traffic signals.

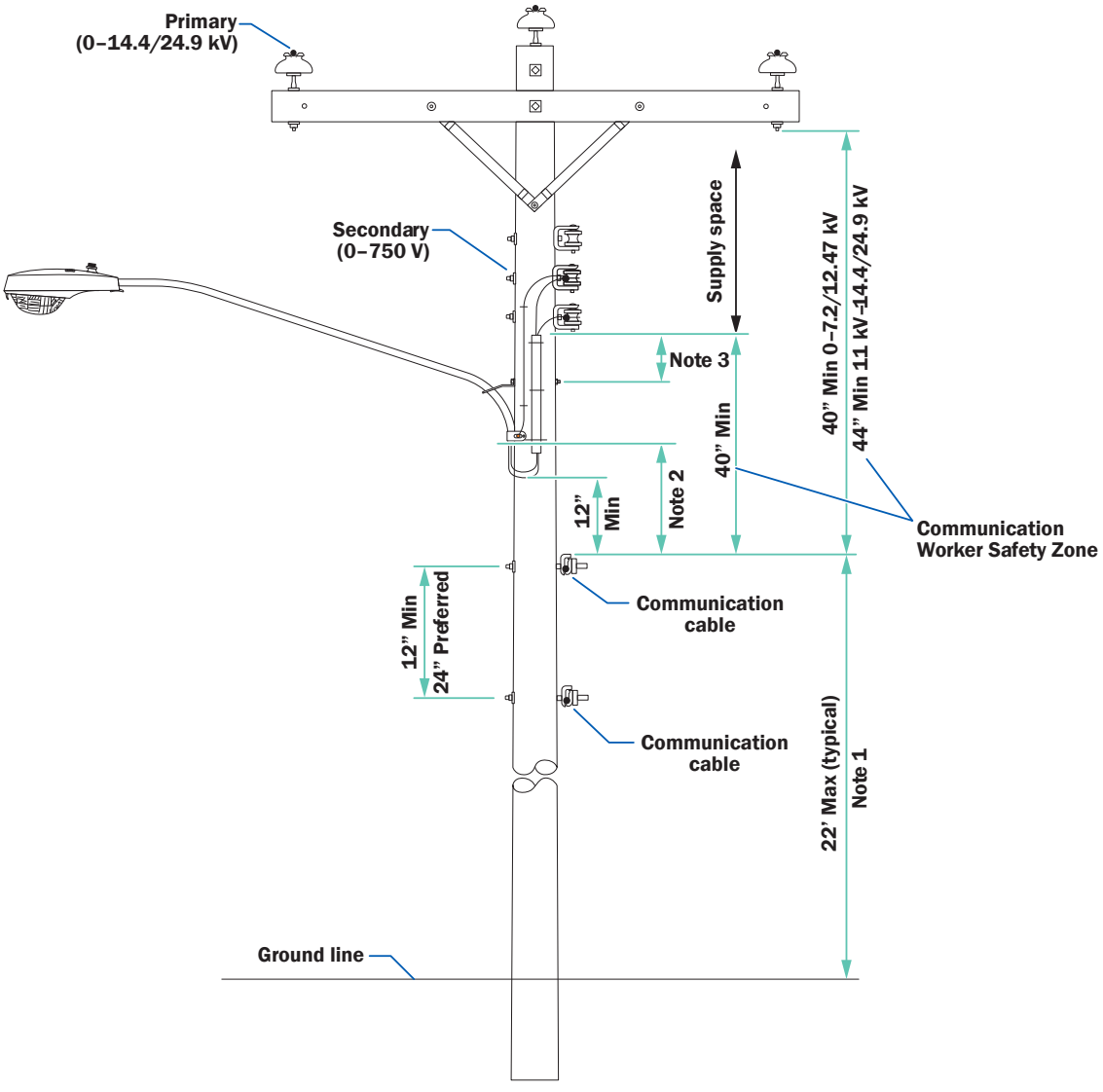

FIGURE 43-116-1 Streetlight on Poles—Joint with Communication (in Communication Zone)

Notes

1. The actual contact height is subject to terrain and National Electrical Safety Code (NESC) ground clearance requirements.
2. For a streetlight bracket that is effectively grounded, this clearance is not applicable because of the required 12” clearance between the drip loop and the communication cable (NESC 238D). For a non-effectively grounded streetlight bracket, the clearance is 40”, (NESC Table 238-2). See **section 42-105** for details on how to effectively ground a streetlight bracket.
3. A customer-owned streetlight bracket that is effectively grounded requires 16” clearance between the highest part of the streetlight mounted to the pole and the secondary cable. For a non-effectively grounded streetlight bracket, the clearance is 40” (NESC Table 235-5). See **section 42-105** for details on how to effectively ground a streetlight bracket.

> **CAUTION**
> In the Communication Worker Safety Zone do not install any equipment per NESC 238 E except luminaries and traffic signals.

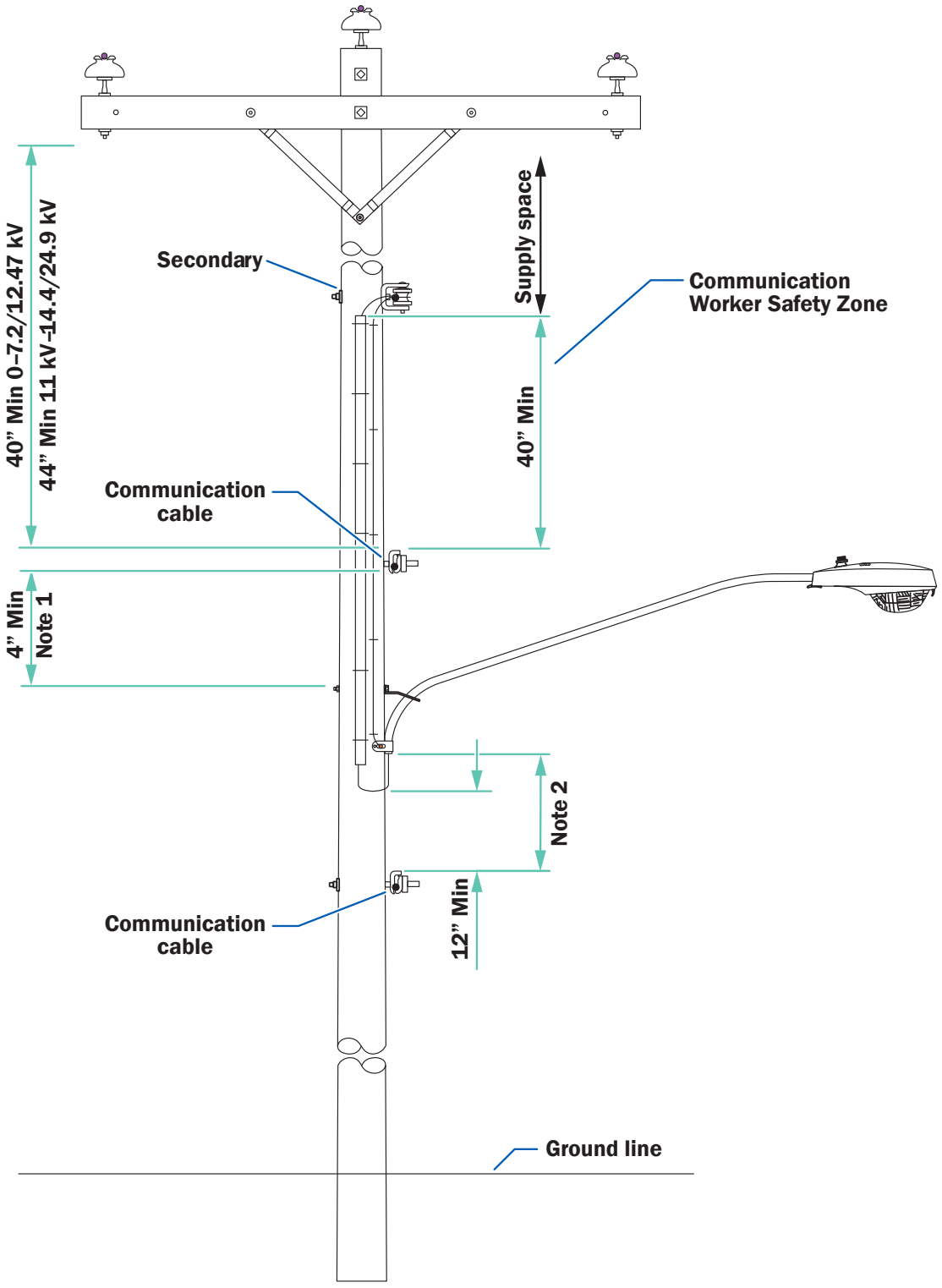

FIGURE 43-116-2 Streetlights on Poles—Joint with Communication (above and below Communication Cables)

Notes

1. For a streetlight bracket that is effectively grounded, clearance is four inches. For a non-effectively grounded streetlight bracket the clearance is 40", (NESC Table 238-2). See **section 42-105** for details on how to effectively ground a streetlight bracket.
2. For a streetlight bracket that is effectively grounded, this clearance is not applicable because of the required 12" clearance between the drip loop and the communication cable (NESC 238D). For a non-effectively grounded streetlight bracket the clearance is 40", (NESC Table 238-2). See **section 42-105** for details on how to effectively ground a streetlight bracket.

3. Separation between communication through bolts and a power vertical run shall be two inches minimum.

CAUTION
In the Communication Workers Safety Zone do not install any equipment per NESC 238E except luminaires and traffic signals.

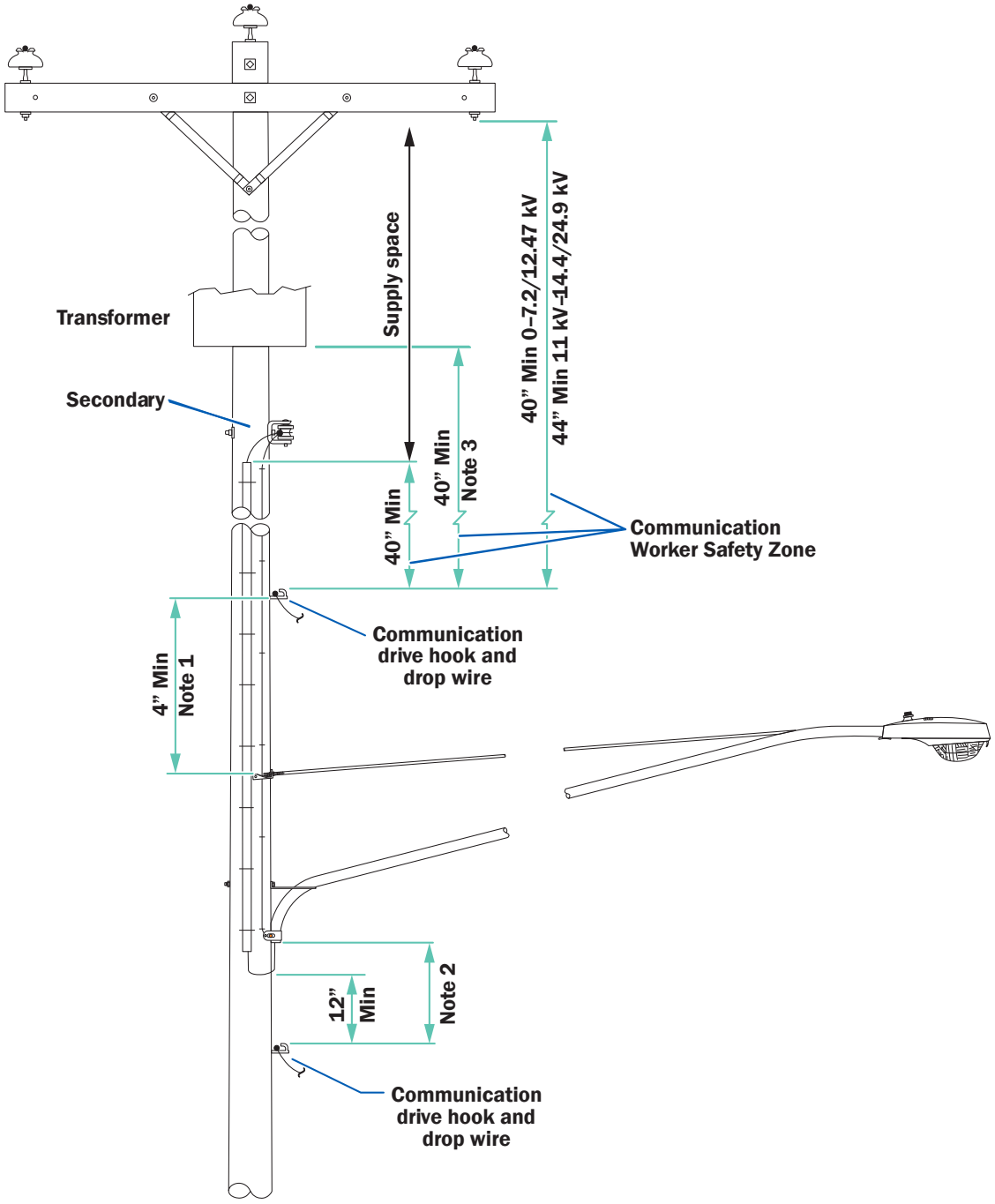

FIGURE 43-116-3 Streetlights on Poles—Joint with Communication (Above and Below Communication Cables on a Transformer Pole)

Notes

1. For a streetlight bracket that is effectively grounded, clearance is four inches. For a non-effectively grounded streetlight bracket, the clearance is 40", (NESC Table 238-2). See section 42-105 for details on how to effectively ground a streetlight bracket.
2. For a streetlight bracket that is effectively grounded, this clearance is not applicable because of the required 12" clearance between the drip loop and the communication cable (NESC 238D). For a non-effectively grounded streetlight bracket the clearance is 40", (NESC Table 238-2). See section 42-105 for details on how to effectively ground a streetlight bracket.

3. 44” clearance is required for 11 kV or above if transformer tank is not grounded.
4. Separation between communication through bolts and a power vertical run shall be two inches minimum.

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43-112 Communication Guy Installations

Revised August 4, 2020 | Required Use

43-112 Communication Guy Installations

Anchors

Each attaching party must install their own guys, guy insulators, anchors, and guy markers. Anchor rods at the ground line should be five feet apart, if possible, but not less than three feet apart.

CAUTION
In the Communication Workers Safety Zone do not install any equipment per NESC 238E except luminaries and traffic signals.

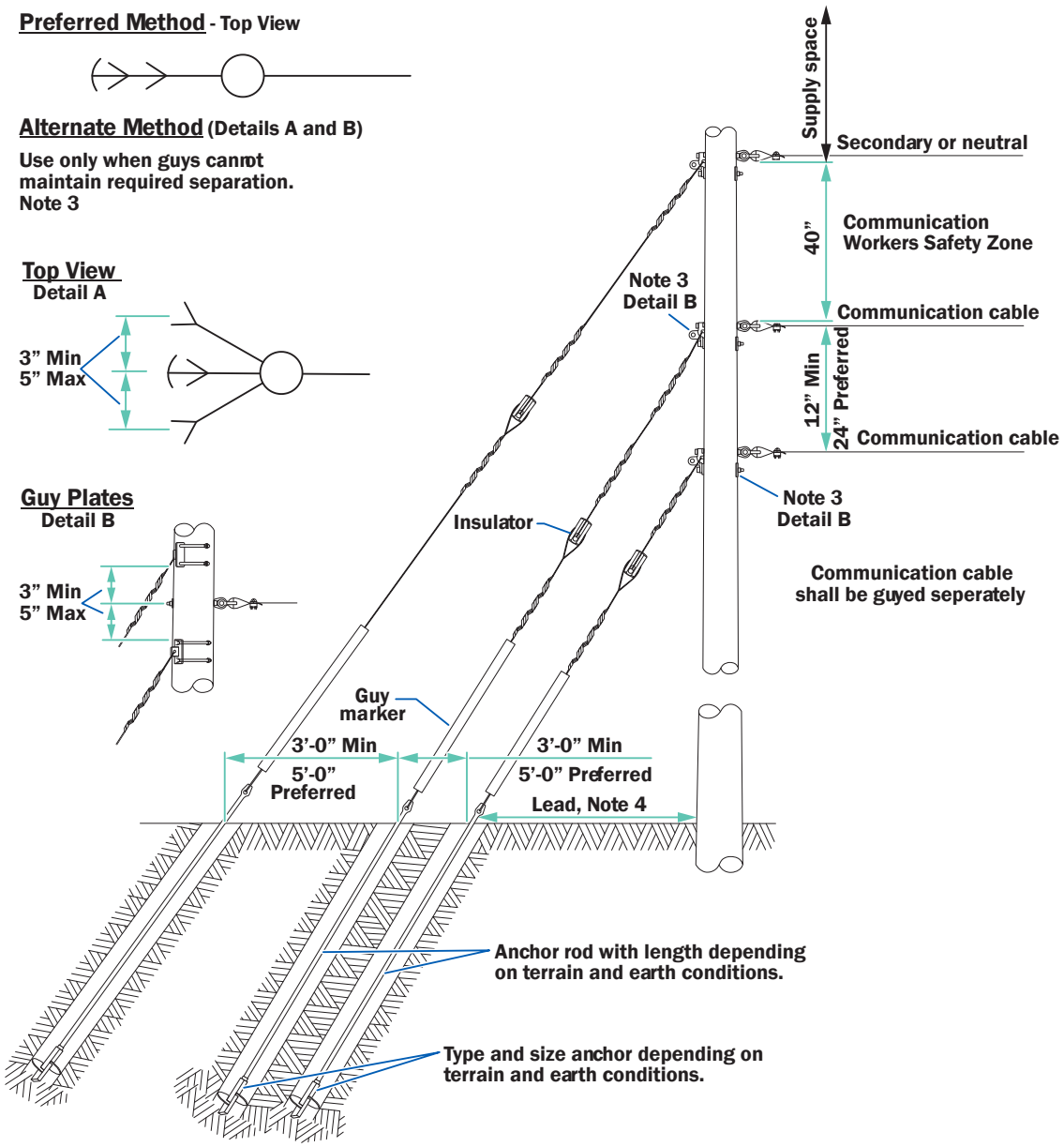

FIGURE 43-112-1 Communication Guy Installations

Notes

1. No more than four guys are allowed below Consumers Energy guys.
2. Ensure vertical loading limits are not exceeded. Consider all loads on poles.
3. If the proposed communication anchor cannot meet the three foot minimum clearance, then relocate the existing anchors with longer leads. If existing anchors cannot be moved, then two communication anchors must be installed instead of one (see Alternate Method in **figure 43-112-1**, Details A and B).
4. Lead lengths are based on load calculations. All leads are to be greater than five feet from the pole.
5. The communication cables shall be guyed separately; however, the communication companies can share the same anchor if they agree to do so. A jointly shared communication anchor must be at least five feet from any Consumers Energy anchors. The three foot minimum is not applicable to a jointly shared communication anchor.

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43-105 Overhead Construction, Joint with Communications

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43-105 Overhead Construction, Joint with Communications

General

When designing new or rebuilt lines consider joint use coordination.

Pole Strength

- Safety factors are identical for joint and non-joint poles. Use new construction strength requirements to size replacement poles. (Contact foreign utilities for loads resulting from their conductors.) Conductors used in determining pole loading include:
    - Existing lines—current requirements
    - New lines—those foreseen in future

D Spacing

- An example of the D spacing is the distance from a crossarm to a neutral, and is required to be a minimum of five feet for new construction. This spacing may be reduced to three feet to avoid a pole replacement if all applicable standards are met (i.e., clearances, maximum span limitations, and proper pole configuration).
- "D" spacing is not to be reduced below five feet when a third party attachment requires additional clearance on a Consumers Energy pole. If extenuating circumstances exist regarding third party attachments, bring them to the attention of the **person responsible for section 24**.

Requirements

The following is intended to respond to the items raised by some cable licensees and is not, nor intended to be, a complete specification of requirements.

1. The vertical clearance at road crossings shall not be less than 15-1/2' under any operating condition. The licensee must determine the additional sag due to increased loading. Clearance of 17' may be appropriate where additional sag is limited to 1-1/2'. This clearance requirement is based on a metal-sheathed cable supported on a messenger, which has at least four grounds in each mile or is based on an insulated cable. Otherwise, the least allowable clearance is 16' rather than 15-1/2' (see National Electrical Safety Code (NESC) Table 232-1). Effectively grounded equipment cases require 15' of clearance above ground (see NESC Table 232-2).
2. At highway crossings, the vertical clearance must not be less than 18' as required by the Michigan Department of Transportation.
3. The vertical clearance between power supply and communications conductors at any point in the span must not be less than 30" with supply conductors at greatest sag and communications conductors at 32°F final unloaded sag. See NESC Rule 235C2b.(1)(a) and NESC Table 235-5. The 30" requirement applies to supply lines operating at 7,200/12,470 V grounded wye and below. For Consumers Energy distribution lines above this voltage, this requirement is 33".

   The vertical clearance between power supply conductors and the top of skip span poles at any point in the span must not be less than 54" with supply conductors at greatest sag.

   The Licensee must contact the owner to determine the greatest sag due to increased loading of the power supply conductors. Supply conductors can have as much as six feet more of sag when ice loaded or at the highest operating temperature than they have at 60° F (see **section 7-15** and **7-25**).

4. The vertical clearance over driveways and fields must not be less than 15-1/2' under any operating conditions. See Requirement 1 (above) for discussion.

5. The attaching party must install guying to offset the additional load introduced by new attachments. Even if other guying exists, additional guying is still required for the new load at the attachment point **before** attachment is made. Also, the attaching party must install their own anchors. Attaching guys to existing anchors is **not** permitted. Guying is normally required at corners, angles, dead ends, large differences in span lengths, and changes in the grade of the construction. See NESC Rule 264A.
6. A seven foot or eight foot guy marker is required on down guys. See NESC Rule 217C. See **section 43-112** for additional guying information.
7. The communications facilities must be bonded at all locations where a power supply system grounding conductor connected to a grounding electrode(s) is available (see NESC Rule 99), but not less than four connections in each mile (NESC Rule 92C1). On transformer poles with a Split Neutral sign, there are two vertical grounding electrode conductors. Communications should only bond to the primary grounding conductor that connects to the distribution system neutral. See **section 43-114** for additional bonding information.
8. For supply lines operating at 7,200/12,470 V grounded wye and below, the vertical clearance to communications conductors at the support (pole) must not be less than 40". See NESC Table 235-5. Where Consumers Energy distribution lines operate above this voltage, this requirement is 44". See Requirement 3 for discussion on clearances required between conductors at any point within the span.
9. Strain insulators must be installed in all down guys and pole-to-pole span guys.
10. Bolts must not extend more than 1-1/2" beyond the nuts.
11. Based on a Consumers Energy multiplex service cable and 40" of clearance at the pole, the vertical clearance to the communications service drop must not be less than 12". This clearance requirement applies at any point in the span including the attachment point at the building. Open-wire supply services are not considered insulated and therefore require 40" of vertical clearance. See NESC Rule 235C1 Exception 3.
12. The system neutral (but not secondary triplex or quadruplex) may have a reduced clearance to the communication of 30" at the structure and 12" in the span when the neutral and cable messengers are bonded together.
13. Communication services are not permitted to be attached to service masts. See National Electrical Code (NEC) Rule 230-28.
14. Standoff brackets are not allowed as an alternative to the pole replacement. Each communication cable must be attached vertically and adhere to the normal spacing of one foot between cables.
15. To provide for climbing space safety and pole replacements, the placement of cables on both sides of a pole or boxing of poles is prohibited. All pole attachments shall be made to provide for unobstructed vertical climbing space.
16. Communications cabinets should not be installed on poles with existing cabinets or underground riser cables. Mounting the cabinet on a riser pole may be a safety hazard because there is nothing to protect the installer from drilling into a Company owned underground cable.
17. Attachments are to be made on the street side of street poles, the alley side of alley poles, and the open lot side of easement or back lot line poles. The open lot side is the side opposite the rear lot line, not obstructed by fences, garages, etc.
18. Communication cables are only allowed to dead end on dead end riser poles if their equipment does not interfere with operation or maintenance of existing equipment on the pole.
19. Vertical supply cables passing through the communication space on jointly used riser structures must be guarded with molding from 40" above the highest communication attachment to six feet below the lowest communication attachment. See NESC 239G1.
20. Contact Consumers Energy regarding installation of midspan poles within its pole line and required clearance specifications. See Requirements 3 and 7–25 for additional information on skip spans.
21. Attachments on Consumers Energy poles shall be identified with the owner's name either by marking the cable itself or attaching an appropriate means of identification to the cable at every pole. All such identifications shall be visible by the naked eye from the ground.
22. Consumers Energy must approve all system expansions, upgrades, rebuilds, over-lashing, or alterations. The original attachment permit is issued for a specific cable. Any alterations, such as over-lashing additional cable, require an engineering evaluation to determine the impact of increased wind loading on the iced conductors that requires increased pole strength and the impact of additional sag on clearances.
23. Reserve cable shall be stored in horizontal configurations (i.e., a snow shoe storage loop). Storing reserve cable in vertical coil configurations is not acceptable.
24. Aerial cable, conduit, hardware, and associated equipment must be solid black, silver, or gray in color.

Pole Attachment Violations Corrections

1. All pole attachment parties are to make a good faith effort to report ground clearance or neutral zone violations encountered in the field to Consumers Energy and/or the owner of the attachment. While performing security inspections, report obvious ground clearance or neutral zone violations to the appropriate utility company. A Network Attachment Specialist (NAS) (see the **Subject Matter Experts** list) can assist you in identifying cable ownership.
2. The advance notification and fix time-lines do not apply to imminent public safety hazards. Consumers Energy has the authority to take whatever action is needed when the violation represents an immediate threat to public safety.
3. Consumers Energy must provide notice to the party it believes caused the violation if it becomes aware of an alleged violation.
4. Once notice has been given to the party in violation, they will have up to 30 days after notification to deny responsibility or 60 days after notification to fix the violation.
5. If Consumers Energy wishes to be reimbursed for remediation work, Consumers Energy must provide a good faith estimate to the violating party and a reasonable time period to allow the owner of the attachment in violation to remove its attachment, except when there is an immediate threat to public safety. This will require giving an estimate and notification to the attachees before reclaiming neutral zone space when adding new facilities. Consumers Energy will be responsible for the neutral zone violation if a prior estimate and a reasonable time for attachees to remove their facilities from the pole is not provided before Consumers Energy installs its facilities.
6. If requested, at the time Consumers Energy receives a permit application, Consumers Energy has five days to provide the new attachee an estimate of how long it will take to do the make-ready survey and provide a make-ready estimate.
7. New attachees are not responsible for the cost of remediating existing NESC violations. They are responsible for the cost of make-ready construction. If the pole has existing violations, Consumers Energy will have to provide cost estimates for the following:
    - Remediation costs to fix the violations.
    - Make-ready costs to accommodate the new attachment once the violations are remediated.
    - Make-ready costs to accommodate the new attachment if the existing violators leave the pole.
    - Combined costs of remediation and make-ready if done as part of one transaction. The existing violator and new attachee have 30 days to negotiate a cost split.
8. When performing make-ready assessments, and a pole change out is needed due to column loading issues and not ground clearance or neutral zone violations, it will be considered attributable to the attachee at fault, new or existing.
9. All reasonable costs for remedial work to correct violations shall be paid by the party causing the violation.

Electric Distribution Engineering Manual | 43, Joint Use

43-114 Bonding of Communication Facilities

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43-114 Bonding of Communication Facilities

- Communications facilities must be bonded at all locations where a vertical grounding conductor (a.k.a. a down ground) is available. These bonds are installed by the communication company. On transformer poles with a Split Neutral sign, there are two vertical grounding conductors. Communications should only bond to the primary vertical grounding conductor that connects to the distribution neutral.
- Communications facilities must be bonded to Consumers Energy vertical grounding conductors (a.k.a. a down ground) or neutral conductors at least four times per mile. Neutral bonds are made where there are no vertical grounding conductors.
    - The communication company installs the bonding conductor on their facilities.
    - Consumers Energy makes the final connection to both the neutral conductors and the vertical grounding conductor (a.k.a. down ground).
        - No charge to telephone companies.
        - Community Access Television (CATV) companies pay total cost.