Rule Number and Description	New, Deleted, or Revised Rule Language	Rationale for Addition, Deletion, or Revision to Rule
	Definition Change	
Revised Rule 22.6-A  Definition of Pole-Top Extension	Pole-Top Extension means a bracket or structure (exclusive of a pole-top pin) attached to a pole and extending above its top to support conductors or equipment.	This change clarifies that pole-top extensions are used to support other facilities such as antennas, as well as conductors.
	Pole Loading Calculation Rule Change	
Revised Rule 44.2 Additional Construction	Any entity planning the addition of facilities that materially increases loads on a structure shall perform a loading calculation to ensure that the addition of the facilities will not reduce the safety factors below the values specified by Rule 44.3. Such loading calculations shall be based on existing condition and proposed configuration, information provided under Rule 44.4, conservative values of relevant parameters, industry recognized values of relevant parameters, or any combination thereof. For wood structures more than 15 years old, the loading calculation shall incorporate the results of intrusive inspections performed within the previous five years. If performed, the entity responsible for performing loading calculations for additional construction Such entity shall maintain these loading calculations for the service life of the pole or other structure for which a loading calculation was made and shall provide such information to authorized joint use occupants and the Commission upon request. Any loading calculations performed for wood structures more than 15 years old shall incorporate the results of intrusive inspections performed within the previous five years.  Note: For the purpose of Rule 44.2, a material increase in load is an addition which increases the load on a structure by more than five percent per installation, or 10 percent over a 12 month span, of the	Entities adding facilities to an existing structure are expected to meet the safety factors in Rule 44.3 regardless of the amount of increase in load on the structure that the additional facilities cause. In deciding whether to perform a loading calculation, the entity should not only consider the amount of increase in load caused by the additional facilities, but also how much more load the structure can handle. This decision should be left to the entity attaching the facilities if Rule 44.3 requirements are always met. The rule change removes the "material increase" provision and rearranges the paragraphs in the rule to clarify its intent.

	electric utility's or Communication Infrastructure Provider's current load.	
	Pole Overturning Rules	
Revised Rule 49.1-C Poles, Towers, and Other Structures - Setting of Poles	The depths of pole setting given in Table 6 are applicable to poles set in firm soil or in solid rock.  Where poles were set in firm soil, but the soil has since been excavated or subjected to erosion, the minimum embedment shall be no less than 90 percent of the values specified in Table 6.  Where, under the loading conditions in Rule 43 and the requirements of Rule 44, the resultant bearing surface is not sufficient to prevent overturning or excessive movement of the pole at the ground line, and/or the soil is not firm, deeper settings or other special methods shall be used. Where poles were set in firm soil, but the soil has since been excavated or subjected to erosion, the minimum embedment shall be no less than 90 percent of the values specified in Table 6.	The language of the old rule required deeper settings or other special methods to be used to prevent pole-overturning or excessive movement, but the old rule was not clear with respect to the loading conditions that must be accounted for. The rule change adds a reference to Rules 43 and 44 to require that deeper settings or other special methods must ensure that the pole must be protected against overturning or excessive movement at any load equal to or less than the load it must be protected against for bending failures. In other words, a pole must not overturn at any load less than the load that causes it to break.
Deleted Rule 94.11 Pole Overturning Calculation	A pole-overturning calculation shall be performed before a pole-top antenna installation is added to a pole. The calculation shall use a safety factor of 3.0 for Grade A construction, and 2.0 for Grades B and C construction, and incorporate loads for the entire pole structure, including all existing attachments and guys (if any), and all elements of the planned pole-top antenna installation. After the installation, the safety factor shall comply with Rule 44.3.  Note: The purpose of this calculation is to ensure that the pole-overturning moment does not exceed the capacity of the soil, rock, or other material in which the pole is embedded to resist the pole-overturning moment.  Note: Added January 28, 2016 by Decision No. 16-01-046.	Conforming change given the change to Rule 49.1-C discussed above. Because Rule 49.1-C applies to both sole-use and joint-use poles, Rule 94.11, which addresses only joint-use poles supporting antennas, could be deleted.

Non-Interference with Fall Protection Equipment Rules			
New Rule 51.8 Interface With Fall- Protection Equipment	Electric supply attachments shall not interfere with the effective use of fall-protection equipment.  Note: Examples of attachments that might not interfere with fall restraint and fall-protection equipment include, but are not limited to, the following:  (1) Surface-mounted equipment that occupies no more than 24 inches of vertical space.  (2) Surface-mounted risers and vertical runs.  (3) Equipment stood off from the pole to maintain a minimum of 4 inches of clear space between the equipment and the surface of the pole, risers, or vertical runs.	This new Section V rule is one of three specific rule revisions developed for inclusion in GO 95 that are similar to Rule 94.6-C (adopted in 2016) addressing interference with fall-protection gear. Collectively, this new rule and new rules in Section VIII and Section IX of GO 95 cover all pole attachments and allow Rule 94.6-C to be deleted.	
Revised Rule 54.7-A-3  Climbing Space (Wood Crossarm Construction)  – Allowable Climbing Space Obstructions	Allowable climbing space obstructions are:  (a) Crossarms and their supporting members.  (b) Insulators and their attaching brackets which support line conductors may extend one—half of their diameter into the climbing space.  (c) Conductors may extend one—half of their diameter into the climbing space.  (d) Suitably protected (covered only by wood, see Rule 22.8):  1) Vertical risers; or runs covered only by wood (see Rule 22.8-B);  2) Vertical runs; or Ground wires covered by wood per Rule 22.8-A1;  3) Ground wires covered by plastic, or other non-conductive material no greater than one-half inch in diameter (see Rule 22.8-A3).	This change addresses conditions related to interference with fall-protection equipment. The revision to subpart A-3-d reorganizes the existing requirement for risers, runs, and bare ground wire located in climbing space to be covered with wood, and modifies an existing requirement to allow protected ground wires (sheathed in polyvinyl material) to be installed in climbing space without being covered by wood moulding. Protected ground wire was first recognized for use in the 2005 edition of GO 95 and the revision to the definition of "Protective Covering, Suitable." Since 2005 utilities have covered protected ground wires with wood when installed in climbing space.	

Such risers, runs, and grounds are allowable provided that not more than one is installed in any 4–foot section of climbing space.

- (e) Guys (except those guys metallically contacting metal pins or deadend hardware as specified in Rule 52.7–D). However, not more than two guys having a vertical separation of 18 inches or less can be installed in any 4–foot section of climbing space.
- (f) Street light brackets may extend one-half their diameter into climbing space. Associated street light bracket struts are allowed in climbing space.
- (g) Operating rods (e.g. switch rods) may extend one—half their diameter into climbing space.
- (h) Band(s), limited to 6 inches in total width are allowed in any 24-inch section of climbing space. These limitations are excluded for pole stubbing and pole splicing bands when pole step provisions are installed.
- (i) Pole restoration materials are allowed in climbing space provided pole steps are placed in the restoration area as part of the process. Pole stepping shall be in accordance with Rule 91.3-B.
- (j) Bolts and their washers. However, bolts bonded to or used for the attachment of deadend hardware of circuits above 750 volts in wood crossarm configuration that project into the climbing space shall be covered with a non-conductive material as specified in Rule 22.8-C. If such bolts are bonded, a positive electrical contact shall be made.

**EXCEPTIONS:** The covering of bolts required by this rule shall not apply to:

- 1) Bolts associated with circuits of more than 7500 volts when located at the top level of a pole.
- 2) Bolts associated with brackets and non-wood crossarms.

The new "reasonable efforts" statement at the end of the rule was developed during workshop discussions of PRs that sought to add a slightly modified version of existing Rule 84.7-A-5-f to all of the climbing space rules. Parties agreed that the revised "reasonable" statement served the intended need and should be included as a standalone (unnumbered) sentence in the climbing space rules.

	Reasonable efforts shall be made to avoid installing the above listed allowable obstructions within the climbing space.	
Revised Rule 54.10-F-3	Allowable climbing space obstructions are:	The revision to subpart F-3-b is a
Climbing Space – Allowable Climbing Space Obstructions	(a) Guys. However, not more than two guys having a vertical separation of 18 inches or less can be installed in any 4-foot section of climbing space.	conforming change to Revised Rule 54.7-A-3, which is discussed above.
	(b) Suitably protected (covered only by wood, see Rule 22.8):	
	1) Vertical risers; or runs covered only by wood (see Rule 22.8-B);	
	2) Vertical runs; or Ground wires covered by wood per Rule 22.8-A1;	
	3) Ground wires covered by plastic, or other non- conductive material no greater than one-half inch in diameter (see Rule 22.8-A3).	
	Such risers, runs, and grounds are allowable provided that not more than one is installed in any 4–foot section of climbing space.	
	(c) Insulators and their attaching brackets may extend one-half their diameter into the climbing space.	
	(d) Conductors may extend one—half their diameter into the climbing space.	
	(e) Street light brackets may extend one—half their diameter into climbing space. Associated street light bracket struts are allowed in climbing space.	
	(f) Operating rods (e.g., switch rods) and their associated hardware may extend one—half their diameter into climbing space.	
	(g) Bands, limited to 6 inches in width with no more than one band allowed in any 24-inch section of climbing space (these limitations	

	are excluded for pole stubbing and pole splicing bands when pole step provisions are installed.)  (h) Bolts and their washers.  The terminals or terminal fittings of risers or runs shall not be installed within climbing space.  Reasonable efforts shall be made to avoid installing the above listed allowable obstructions within the climbing space.	
Revised Rule 54.11-G	Allowable climbing space obstructions in triangular and vertical configuration without the use of wood crossarms are:	The revision to subpart G-4 T is a conforming change to Revised Rule 54.7-
Insulators in Vertical and Horizontal Position	(1) Crossarms, brackets, and their supporting members.	A-3, which is discussed above.
Without the Use of Wood Crossarms, More Than 750 Volts (Vertical and Triangular	(2) Insulators which support line conductors, jumpers, and incidental wires may extend one—half of their diameter into the climbing space.	
Construction) – Allowable Climbing	(3) Conductors may extend one-half of their diameter into the climbing space.	
Space Obstructions	(4) Suitably protected (covered only by wood, see Rule 22.8):	
	1) Vertical risers; or runs covered only by wood (see Rule 22.8-B);	
	2) Vertical runs; or Ground wires covered by wood per Rule 22.8-A1;	
	3) Ground wires <u>covered by plastic, or other non-conductive material no greater than one-half inch in diameter (see Rule 22.8-A3)</u> .	
	Such risers, runs, and grounds are allowable provided that not more than one is installed in any 4–foot section of climbing space.	
	(5) Guys (except those guys which are metallically contacting metal pins or deadend hardware as specified in Rule 52.7-D). However,	

	not more than two guys having a vertical separation of 18 inches or less can be installed in any 4-foot section of climbing space.	
	(6) Street light brackets may extend one-half their diameter into climbing space. Associated street light bracket struts are allowed in climbing space.	
	(7) Operating rods (e.g., switch rods) and their associated hardware may extend one—half their diameter into climbing space.	
	(8) Bands, limited to 6 inches in width with no more than one band allowed in any 24–inch section of climbing space (these limitations are excluded for pole stubbing and pole splicing bands when pole step provisions are installed).	
	(9) Bolts and their washers. If bolts are bonded, a secure electrical contact shall be made. The covering of bolts and bond wire is not required in triangular and vertical configuration without the use of wood crossarms.	
	Reasonable efforts shall be made to avoid installing the above listed allowable obstructions within the climbing space.	
Revised Rule 54.12-F-3	Allowable climbing space obstructions are:	The revision to subpart F-3-b is a
Allowable Climbing Space Obstructions	(a) Guys. However, not more than two guys having a vertical separation of 18 inches or less can be installed in any 4-foot section of climbing space.	conforming change to Revised Rule 54.7-A-3 discussed above.
	(b) Suitably protected (covered only by wood, see Rule 22.8):	
	1) Vertical risers; or runs covered only by wood (see Rule 22.8-B);	
	2) Vertical runs; or Ground wires covered by wood per Rule 22.8-A1;	
	3) Ground wires covered by plastic, or other non- conductive material no greater than one-half inch in diameter (see Rule 22.8-A3).	

	Such risers, runs, and grounds are allowable provided that not more than one is installed in any 4–foot section of climbing space.  (c) Insulators and their attaching brackets may extend one-half their diameter into the climbing space.  (d) Conductors may extend one—half their diameter into the climbing space.  (e) Street light brackets may extend one—half their diameter into climbing space. Associated street light bracket struts are allowed in climbing space.  (f) Operating rods (e.g., switch rods) and their associated hardware may extend one—half their diameter into climbing space.  (g) Bands, limited to 6 inches in width with no more than one band allowed in any 24–inch section of climbing space (these limitations are excluded for pole stubbing and pole splicing bands when pole step provisions are installed.)  (h) Bolts and their washers.  The terminals or terminal fittings of risers or runs shall not be	
	installed within climbing space.  Reasonable efforts shall be made to avoid installing the above listed allowable obstructions within the climbing space.	
New Rule 81.7 Interference with Fall- Protection Equipment	Communication attachments shall not interfere with the effective use of fall-protection equipment.  Note: Examples of attachments that might not interfere with fall restraint and fall-protection equipment include, but are not limited to, the following:  (1) Surface-mounted equipment that occupies no more than 24 inches of vertical space.	This new rule is one of three specific rule revisions developed for inclusion in GO 95 that are similar to Rule 94.6-C (adopted in 2016) addressing interference with fall-protection gear. Collectively, this new rule and new Rules 51.8 and 91.6 will apply to all pole attachments and allow Rule 94.6-C to be deleted.

	(2) Surface-mounted risers and vertical runs.  (3) Equipment stood off from the pole to maintain a minimum of 4 inches of clear space between the equipment and the surface of the pole, risers, or vertical runs.	
Revised Rule 84.7-A-5 Climbing Space and Working Space - Allowable Climbing Space Obstructions	a. Vertical conductors, when in a suitable protective covering attached directly to the surface of the pole, terminal boxes or similar equipment which do not extend more than 5 inches from the surface of the pole, and guys, will not be held to obstruct the climbing space provided not more than two guys (provided they are separated at the pole by a vertical distance of not more than 18 inches) and one other of the above named obstructions are installed in any 4-foot vertical section of climbing space.  b. Crossarms and their supporting members are allowed in climbing spaces provided that, where buck arms are involved, any arms within climbing spaces are treated as double arms.  c. A guard arm, a longitudinal run of messenger, cable or insulated wire will not be held to obstruct the climbing space where they are placed in the climbing space because the presence of a building wall or similar obstacle will not permit the cable to be placed on the side of pole opposite the climbing space. Pole steps shall be suitably placed for the purpose of facilitating climbing past the level of terminal box, cable, drop wires and guard arm.  d. Pole restoration materials are allowed in climbing space provided pole steps are placed in the restoration area as part of the process. Pole stepping shall be in accordance with Rule 91.3-BC.  e. Bands limited to 6 inches in total width are allowed in any 24-inch section of climbing space. These limitations are excluded for pole stubbing and pole splicing bands when pole step provisions are installed.	This revision to Rule 84.7-A corrects an incorrect cross-reference to Rule 84.7-E that was inadvertently included in D.15-01-005. In D.15-01-005, Rule 84.7 was reorganized to create a new 84.7-A for existing Allowable Climbing Space Obstruction rules and added a new 84.7-B for (then) new Working Space rules. Due to the reorganization, original 84.7-E was replaced by 84.7-A-5; however, some of the references to 84.7-E were not refreshed.  The new "reasonable efforts" statement at the end of the rule was developed during workshop discussions of PRs that sought to add a slightly modified version of existing Rule 84.7-A-5-f to all of the climbing space rules. Parties agreed that the revised "reasonable" statement served the intended need and should be included as a standalone (unnumbered) sentence in the climbing space rules. Conforming change to Revised Rule 54.7-A-3 discussed above.

New Rule 91.6 Interference with Fall-Protection Equipment	f. Unnecessary impairment of the climbing space is not permitted by the application of this Rule 84.7-E.  Reasonable efforts shall be made to avoid installing the above listed allowable obstructions within the climbing space.  Electric supply and communication attachments shall not interfere with the effective use of fall-protection.  Note: Examples of attachments that might not interfere with fall restraint and fall-protection equipment include, but are not limited to, the following:  (1) Surface-mounted equipment that occupies no more than 24 inches of vertical space.  (2) Surface-mounted risers and vertical runs.  (3) Equipment stood off from the pole to maintain a minimum of 4 inches of clear space between the equipment and the surface of the pole, risers, or vertical runs.	New Rule 91.6 is one of three specific rule revisions developed for inclusion in GO 95 that are similar to Rule 94.6-C (adopted in 2016) addressing interference with fall-protection gear. Collectively, this new rule and new Rules 51.8 and 81.7 will apply to all pole attachments and allow Rule 94.6-C to be deleted.
Revised Rule 93 Climbing Space	Climbing space shall be provided on all jointly used poles which support conductors and in accordance with the provisions of Rules 54.7, 54.9, 54.10, 54.11, 54.12 and 84.7 are directly applicable to such poles.  Climbing space on jointly used poles shall be so correlated maintained between conductor levels and equipment of different ownership so that its position in relation to the pole is not changed by more than 90 degrees in a vertical distance of less than 8 feet.  Climbing space shall be maintained from the ground level.	This revised rule was developed to align the climbing space description contained in Rule 93 with the other applicable climbing requirements of GO 95. The revisions to this rule improve clarity and applicability. Additional references to the climbing space rules are added to ensure completeness of the instant rule and the second paragraph is modified to include a simplified statement for ensuring the proper positioning of climbing space on joint use poles.
Revised Rule 94.6 Climbing Space	A. Climbing space above supply lines shall be maintained in accordance with Rule 54.7-A to:	New Rules 81.7 and 91.6 are similar to Rule 94.6-C (adopted in 2016) and address interference with fall-protection gear. These new rules apply to all pole

- (1) The bottom of the Antenna (including associated support elements) if affixed less than 8 inches from the surface of the pole at the top of the pole or pole-top extension.
- (2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than 8 inches from the surface of the pole or pole-top extension.
- (3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels above supply lines.
- B. Climbing space above communication lines shall be maintained in accordance with Rule 84.7 to:
  - (1) The bottom of the Antenna (including associated support elements) at the top of the pole or pole-top extension when affixed less than 8 inches from the surface of the pole.
  - (2) The top of the pole or pole-top extension if the Antenna (including associated support elements) is affixed more than 8 inches from the surface of the pole or pole-top extension.
  - (3) The bottom of the uppermost Antenna (including associated support elements) if multiple Antennas are present at different levels.

C. Antennas and all associated attachments shall not impair climbing space or interfere with fall restraint and fall protection equipment except as permitted by the application of Rule 54.7 or Rule 84.7.

attachments and allow Rule 94.6-C to be deleted.

Note: Examples of attachments that might not interfere with fall	
restraint and fall protection equipment include, but are not limited	
to, the following:	

- (1) Surface-mounted equipment that occupies no more than 18 inches of vertical space.
- (2) Equipment stood off from the pole to maintain a minimum of 4 inches of clear space between the equipment and the pole.
- (3) Appropriately designed and installed surface-mounted risers.

#### **Pole Steps Rule**

#### Revised Rule 91.3

# Pole, Towers and Structures - Stepping

#### A. Use Of Steps

(1) Poles with Vertical Runs or Risers: All jointly used poles which support supply conductors shall be provided with pole steps if vertical runs or risers are attached to the surface of such poles, unless the conditions described in the following subparagraphs (a), (b) or (c) are met:

(a) One—Party Poles: Poles which carry circuits operated and maintained by only one party are not required to be stepped, provided any vertical runs or risers on the surface of such poles are covered by a suitable protective covering (Refer to Rule 54.6—E and Rule 84.6—E) from the ground line to a level not less than 8 ft. above the ground line, or provided that such poles comply with the conditions of Rule 91.3—A1b.

(b) Communications Runs: Joint poles with vertical communications runs are not required to be stepped, provided all of the following conditions are met:

1) The pole has no pole mounted communication terminals, no risers and no vertical runs (including ground wires) located within the climbing space,

This rule revision improves worker safety by modifying the current rules to make the installation of permanent steps in wood poles optional rather than mandatory. In 2014, the federal Occupational Safety and Health Administration (OSHA) issued new and revised "fall-protection" rules that include requirements for the use of "wood pole fall-protection devices." Cal-OSHA adopted near identical rules in 2018.

Many of California's electric utilities revised their wood pole climbing policies and practices in advance of the revisions to Cal-OSHA rules and have found that wood pole steps are an encumbrance to the safe and proper use of wood pole fall-protection devices. During the workshops, one utility described three (recent) serious injuries to line workers involving steps and fall-protection

and not more than three levels of communication line conductors;

- 2) The communications levels consist only of drop wire in line cable construction, span wire supported cables, and messenger-supported cables;
- 3) The maximum vertical separation between the highest and lowest line communications levels is not more than 30 inches;
- 4) The vertical runs other than ground wires consist entirely of drop wire cables for service drops which extend vertically no more than one foot above and below the communication line levels.

(c) Supply Runs: Joint poles with supply vertical runs are not required to be stepped provided all of the following conditions are met:

- 1) All supply circuits on the pole are operated and maintained by only one party.
- 2) All supply vertical runs other than ground wires are located entirely above the communication levels.
- 3) No ground wire runs are located within the climbing space except those portions which are located above the communications level.

#### **B.** Location of Steps

A. Unless otherwise specified in this Order, pole steps used to ascend and descend joint use wood poles are not required. However, occupants on joint use wood poles are not prohibited from installing and maintaining temporary or permanent steps.

equipment. In addition, a member of the GO 95/128 Rules Committee presented Appendix C and demonstrated the use of this equipment. Parties agree that the presence of wood pole steps can impede linemen ascending and descending poles while using required fall-protection gear, and also agree that although the installation and use of wood pole steps might be warranted in some circumstances, installation should not be required. This revised rule was crafted to enhance safe climbing methods associated with fall-protection gear. The final version of Rule 91.3 also retains prior requirements that are applicable to the installation and maintenance of pole steps when/where installed.

We understand the reference in sub-part B to "provisions for ascending and descending" means access to the pole using ladders or bucket trucks.

B. Unless non-climbable, joint use nonwood poles shall include provisions for ascending and descending.

<u>C. Where installed</u>, the lowest step shall not be less than 8 feet from the ground line, or any easily climbable foreign structure from which one could reach or step. Above this point steps shall be placed, with spacing between steps on the same side of the pole not exceeding 36 inches, at least to that conductor level above which only circuits operated and maintained by one party remain. Steps or fixtures for temporary steps shall be installed as part of a pole restoration process. Steps shall be so placed that runs or risers do not interfere with the free use of the steps.

Exception: Steps are not required above the uppermost Class C circuit where an Antenna is affixed above supply conductors.