

2023 NESC[®] HANDBOOK

2023 NESC plus expert insights and
commentary from contributors,
including a representation of the Code

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commentary from contributors,
including a representation of the Code.*

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The quality of the presentation of information contained in this publication reflects not only the obvious efforts of the contributors, but also the work of these peer reviewers. The IEEE Press acknowledges with appreciation their dedication and contribution of time and effort on behalf of the IEEE.

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On behalf of the National Electrical Safety Code (NESC) committee, the IEEE Standards Association would like to express special recognition and gratitude to Nelson G. Bingel III, Danna Liebhaber, Larry Slavin, Bruce Friemark, Robert Molde, Lauren E. Gaunt, James Houston, Greg Wolven, and Joe Rempe, for their support and service to the NESC standards development process.

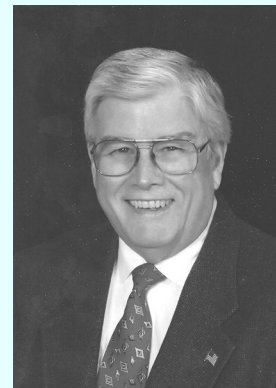
The IEEE Standards Association gratefully thanks and recognizes Sue Vogel and Charlie Bleakley for their dedication and service to the NESC and the industries that it serves. We heartily wish you all the best in your well-deserved retirement. The NESC will never be quite the same without you. Your retirement leaves a gap in all our lives and hearts and calls for special people to get onboard and build upon your accomplishments.



Nelson G. Bingel III



Sue Vogel



Charles (Charlie) Bleakley

About this edition of the NESC Handbook

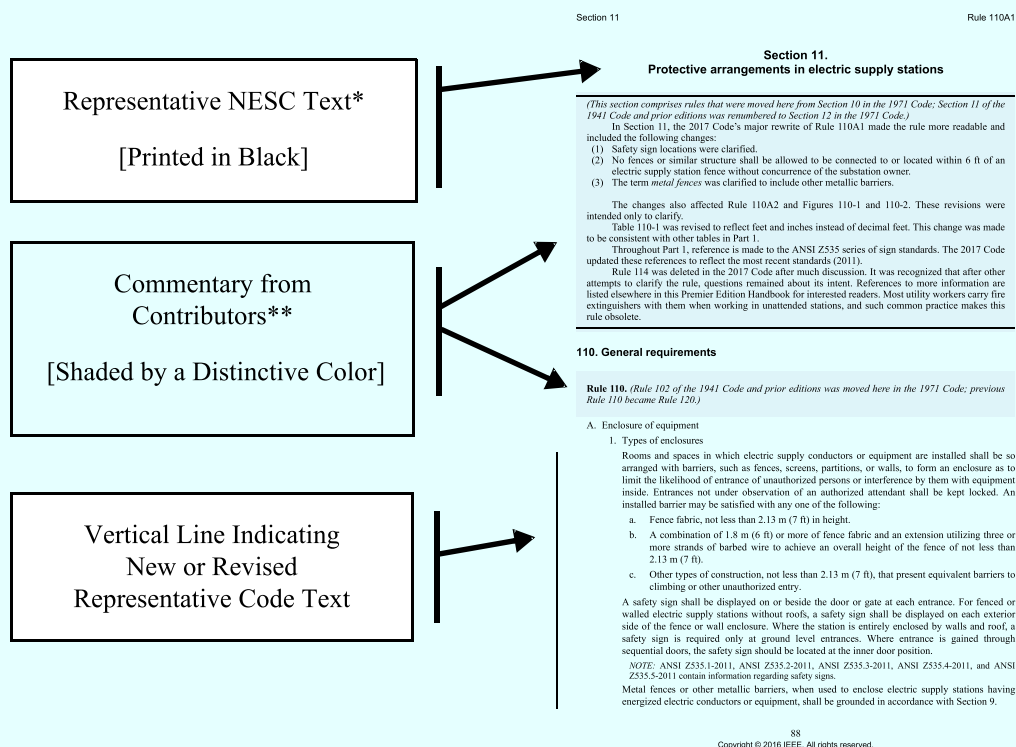
Welcome to the 2023 NESC® Handbook.

This edition of the Handbook represents a next-generation tool for the professional who needs to understand the NESC. Contributor commentary gives users insight into what lies behind the NESC rules and how users might apply them. Unlike earlier handbooks, this new edition includes a representation of the Code*, with history and commentary** interspersed and coincident with the representative Code.

Discussed in the history and commentary are the development of the rules in the Code and the response to change proposals during the past 95 years. This commentary allows users to understand how questions they may encounter were dealt with in the past.

This Handbook includes input from contributors who are NESC committee members as well as the strong foundation developed by previous NESC handbook editors. The culmination of this effort is truly a collaborative effort, aimed at bringing to the NESC user the most comprehensive information regarding the evolution and content of the 2023 NESC.

How to Use this Edition of the Handbook



* This Handbook provides a representation of the NESC text; however, the definitive text is found in the Code itself, the *National Electrical Safety Code®*, 2023 Edition.

** Commentary from contributors provides a historical perspective on the development of the Code but is not text from the Code. Commentary does not constitute an interpretation of the Code and does not replace the NESC process for obtaining formal interpretations of the Code. (For information on that process, see <https://standards.ieee.org/products-programs/nesc/products/>.) The combination of Code and commentary is provided for user convenience only.

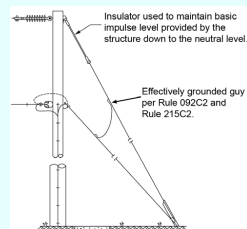


Figure 279-1—Insulator used for BIL insulation

New or Revised Diagrams
and Photos within
the Representative Code Text

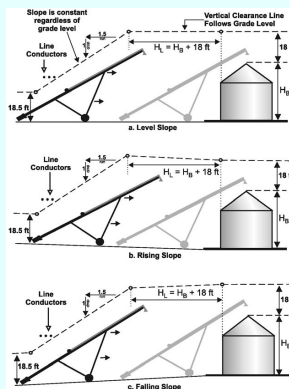
Rule 279A2. (This rule was added as Rule 279A3 [Corrosion protection] in the 1977 Code and was revised and renumbered to Rule 279A2 in the 2007 Code.)

Insulators placed in a guy solely to prevent electrolysis are not required to meet the requirements for guy insulators, but they may not reduce the strength of the guy. See Rule 217A (Rule 280A of the 1987 Code and prior editions).

In 2007, insulators used for BIL insulation purposes were specifically added to the rule, along with a reference to new Rule 215C7. The 2017 Code revised Rule 279A2(a) to further address this issue. In essence, by insulating the pole end of guys, the pole ground wire that otherwise would have run up the pole in the area of the energized phases can be removed, and the BIL level of the top of the pole can be increased on wood or FRP poles. Quite often the desire is to create a ground-free work zone in the area of the phase conductors. If the guys were grounded in that area, Rule 441A3 would require them to be covered with insulation while work was performed; thus guys are increasingly insulated on the pole end—particularly for the 25 kV and 35 kV distribution class voltages. Even though the insulation may be primarily for work efficiency in this case, it still increases the BIL capability of the top of the pole. Neither insulators used to limit galvanic corrosion nor insulators used for BIL insulation are required to meet the electrical strength requirements for guy insulators, but both are required to meet the mechanical strength requirements (see Rule 279A1c).

279A2. Use of guy insulators (2002 Code and prior editions) (Rule 279A2 of the 2002 Code was moved to Rule 215C; see Rules 215C2, 215C3, and 215C5.)

279A3. Corrosion protection (This rule was added in the 1977 Code and was revised and renumbered to Rule 279A2 in the 2007 Code.)

Figure H234-4(b)
Vertical clearance above flat or sloping ground
near grain bins filled with portable augers

G. Additional clearances for voltages exceeding 22 kV for wires, conductors, cables, and unguarded rigid live parts of equipment

Greater clearances than specified in Rules 234B, 234C, 234D, 234E, 234F, and 234J shall be provided where required as follows:

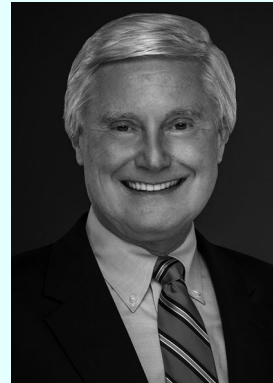
1. For voltages between 22 and 470 kV, the clearance specified in Rules 234B, 234C, 234D, 234E, 234F, and 234J shall be increased at the rate of 10 mm (0.4 in) per kV in excess of 22 kV. For voltages exceeding 470 kV, the clearance shall be determined by the method given in Rule 234H. All clearances for lines over 50 kV shall be based on the maximum operating voltage.

EXCEPTION: For voltages exceeding 98 kV ac to ground or 139 kV dc to ground, clearances less than those required above are permitted for systems with known maximum switching-surge factor. (See Rule 234H.)

Diagrams and Photos
from
Handbook Contributors

About the Contributors and Reviewers

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Nelson has been active with the NESC for more than 25 years on Subcommittee 5 (Overhead Lines—Strength and Loading) and served as chair of SC5 for the previous two code cycles. Since 2016, Nelson has been chair of the NESC Main Committee and the NESC Executive Committee and a member of NESC Subcommittee 1 (Coordination, Scope, Purpose, Definitions, and References). He also has been chair of the American Standards Committee O5 (Specifications and Dimensions for Wood Poles), which develops the standards for new wood poles and crossarms. At this time, he serves as vice chair.

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Johnny has been involved on various NESC subcommittees since 1990. He is past chair of NESC Subcommittee 2 (Grounding Methods), and past member of NESC Subcommittee 1 (Coordination, Scope, Purpose, Definitions, and References). He remains a member of the NESC Interpretations Subcommittee.

Johnny has provided research and served as a reviewer for the previous editions of the NESC Handbook, is a contributor to the Standard Handbook for Electrical Engineers published by McGraw-Hill, and has authored articles on electrical power quality issues and on both the NESC and the National Electrical Code® (NEC®).

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Lauren E. Gaunt, *Contributor*, Lauren E. Gaunt, Contributor, has more than 40 years of experience in the planning, engineering, construction, and operation of electric power distribution, transmission, and substation systems. Lauren was employed for 32 years within the Eversource Energy System in Connecticut and served as a principal engineer and the company's primary technical communicator with Connecticut's Public Utilities Regulatory Authority. Lauren presently provides consulting services to electric utilities.

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Charlie earned a bachelor's degree in electrical engineering from Auburn University.



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Letter symbols for units

This Code uses standard symbols for units. They have the following meanings:

A	ampere
C	degree Celsius
ft	foot
ft ²	square foot
ft ³	cubic foot
F	degree Fahrenheit
g	gram
Hz	hertz
h	hour
in	inch
in ²	square inch
k	kilo (10 ³)
kg	kilogram
kPa	kilopascal
km ²	square kilometer
kV	kilovolt (1000 V)
kVA	kilovoltampere
kW	kilowatt
m	meter
m ²	square meter
m ³	cubic meter
m	milli (10 ⁻³)
mA	milliampere
mi	mile (international)
mm	millimeter
min	minute (time)
N	newton
Pa	pascal
lb	pound
s	second (time)
V	volt
W	watt

Section 1. Introduction to the National Electrical Safety Code®

The National Electrical Safety Code (NESC®) is American National Standard C2. It is a consensus standard that has been prepared by the National Electrical Safety Code Committee under procedures approved by the American National Standards Institute (ANSI). The membership of the NESC Committee is composed of national and international organizations and is certified by ANSI as having an appropriate balance of the interests of members of the public, utility workers, regulatory agencies, and the various types of private and public utilities.

The NESC is used in whole or in part by statute, regulation, or consent as the standard (or basis of the standard) of safe practice for public and private utilities in the United States, as well various jurisdictions and industries in other countries.

(This section was created in the 1981 Code; Rules 010–015 were generally contained previously in the introductory rules of each separate part of the Code (Rules 100, 102, 103, 200, 201, 202, 210, 211, 300, 301, 302, 303, 310, 311, and 400). When all parts of the Code were simultaneously revised for the first time in the 1981 Code, these rules were collected in one place and revised for uniformity to eliminate redundant language, and to increase the clarity and specificity of requirements so as to increase the understandability of the NESC.)

The rules in Section 1 apply to all of the parts and sections in the NESC. Rule 010 (Purpose) says whom the NESC rules are to safeguard. The “whom” includes people, both the public and utility workers.

The word “practical” is used to describe rules that are written to safeguard the public and the utility facilities. This phrasing means that requirements of the NESC rules must be *doable* and will create the *level of safety required for the activity or installation*. For example, the work rules require protective insulating equipment be used when workers are within reach of electric power lines; this requirement is practical, or doable, and protects the worker from injury; therefore, the requirement fulfills the rule’s intent. As another example, the clearance above ground for overhead wires, cables, and conductors must be high enough to safeguard the activity under the overhead lines and, to be practical, vary according to the activity under the lines. The clearance over railroad tracks is greater than the clearance over a road due to the height of a railroad boxcar compared to the height of a trailer truck. It is practical that the clearances are different and at the same time provide the desired level of safety to avoid contact between overhead lines and the objects or activity below the lines.

Rule 010 also states that the Code is not a design specification or an instruction manual. The NESC is a performance standard. It does not specify materials to be used for certain installations, nor does it provide instructions on how to meet the Code requirements. The Code recognizes that design specifications and work methods vary from utility to utility depending on many factors such as location, typical climate conditions, terrain, etc. The most common example of this rule is that the Code requires clearances above ground over which the overhead lines pass, but the Code does not require the use of a certain type of structure to support the overhead lines. Metal lattice-type towers, wood, concrete, fiberglass, or metal poles may be used as long as the structure meets the Code’s strength requirement and is high enough to provide the required clearance.

The clearances and strength requirements are basic requirements. The rules stating clearance and strength requirements use the words “not less than” where a clearance or strength requirement is specified. If so desired, utilities may exceed these requirements, but failing to meet the specified clearance or strength requirements creates a condition affecting compliance with this Code. If a utility constructs a system that meets the basic requirements, it provides the practical safeguarding of persons.

Rule 011 (Scope) describes, in detail, what is covered by the Code and what is not covered by the Code. Generally, every function performed by a public or private electric supply utility is covered. The NESC coverage stops at the customer or user service point. Also covered by the NESC are independent electric generators that supply electricity to electric supply utilities only. Communication utilities including telephone, TV cable, and data transmission utilities that use overhead and underground lines to transmit or receive signals, as well as overhead trolley lines and street and area lighting system controlled and operated by public or private utilities that are supplied from lines on the line side of the

service point, are also covered. Similar utility systems that are not operated by utilities such as large industries or government-owned systems (military bases) are covered by these rules.

Electric supply stations are also covered by this Code. The building wiring, i.e., ceiling lights and wall sockets in offices that are not part of the generation or substation bus work or wiring, is not covered by this Code. It is covered by NFPA 70[®], National Electrical Code[®] (NEC[®]).

Not covered by the Code is all wiring beyond the service point. The service point for overhead lines is usually at the weatherhead. In underground service areas, the service point may be in an underground vault, at a pad-mounted transformer, at the building wall, or inside the building in the main switch equipment. In residential areas where the utilities are underground, the service point is usually at the residence metering point. However, the metering equipment is covered by this Code regardless of its location.

Rule 012 (General rules) requires all electric supply and communication lines and equipment to be designed, constructed, operated, and maintained to meet the rules in the Code. It also requires all entities designing, constructing, maintaining, and operating electric supply or communication lines and equipment covered by the Code to be responsible for meeting the applicable requirements. For example, if a utility contracts with a construction company to build or maintain an overhead line, the contractor is responsible for making sure the work is done according to the NESC safety rules for over line work.

Rule 012C is a rule that requires practical safeguarding for situations that are not specifically covered by the Code. This rule is referred to when it is not practical to meet a Code requirement or the situation is not specifically covered by the Code although it is within the scope of normal Code requirements. Safeguarding must be done based on the known conditions at the time and should be comparable to the level of safety that the Code would normally provide. For example, when an overhead line is to be constructed along a road that passes through a ravine, the vertical clearance above ground will be determined and met based on the ground clearance rules. The Code does not specify diagonal or horizontal clearances to ground. If the side of the ravine is accessible to persons or will be maintained by roadway maintenance crews, doing nothing is not an option. Appropriate clearance should be determined and the line constructed to provide the needed safe clearance for the activity on the side of the ravine.

Rule 013 (Application) requires all new installations and extensions or additions to utility installations to meet the Code unless the governmental agency that oversees the enforcement of the Code waives the rules. Again, the requirement to provide safeguarding for the public and utility workers does not go away; equivalent levels of safeguarding are required by this rule.

The application rules also allow utilities to experiment with different types of construction and methods that are specified by the Code if qualified supervision is provided, the level of safety is maintained, and, when joint-use structures are involved, all affected joint users are notified.

The application rules include extensive rules covering existing installations. The first application rule states that if an existing installation meets or is altered to meet this Code edition, then it meets the Code and is not required to meet earlier editions of the Code.

The second application rule says that if an existing installation, including maintenance replacements, meets an earlier edition, then it meets the Code. However, if the government agency that administers the Code requires updating for safety reasons, then this rule does not apply. This situation may occur where the building clearance allowed by earlier editions is less than the clearance specified in the current edition. Also, if the structure is being replaced, this rule and Rule 202 require the structure to meet Rule 238C of the current edition.

The third application rule allows the addition, alteration, or replacement of lines or equipment on an existing structure without replacing or modifying the structure if (a) the installation meets the applicable Code edition in effect when the installation was originally constructed, or (b) the structure and the attached facilities were modified after the original construction date and updated to the Code in effect at that time, or (c) the structure meets the present Code when the work is finished.

For example, an overhead line was constructed meeting the 1984 Code. Work was done on the structure during the time when the 1990 Code was in effect. If the installation was updated to meet the 1990 Code, then the 1990 Code becomes the applicable Code for this installation. If the installation still met the 1984 Code and was not modified to meet the 1990 Code, then the 1984 Code is still the applicable Code. Additions or modifications may be done on this structure while the present Code is in effect. After the additions and modifications are made, the structure must meet the applicable Code requirements. If the structure was not modified to meet the present Code, then the structure must be in compliance with the applicable Code that resulted from the previous work done when the 1990 Code was in effect. If the installation was updated to meet the rules in the present Code, then the present

Code is the applicable Code. Neither the 1984 Code nor the 1990 Code may be used as the applicable Code for this installation.

A new rule was added in the 2017 Code to the application rules to allow addition or modifications to a structure that does not comply with the applicable rules. If the addition or modification does not create a structural, clearance, or grounding noncompliance or will make an existing noncompliance worse, then the addition or modification is allowed before the noncompliant condition is corrected. The rules requiring inspections, testing, and correcting noncompliant conditions are still in effect and are not affected by this rule.

The application rule also requires the current inspection and work rules to be used on new and existing installations. This rule was added to require work on existing lines and equipment be done using the up-to-date work rules instead of the work rules in effect when the installation was constructed or modified. Inspection and work rules shall always be applicable to the current edition even though the applicable edition for the installation may be a previous edition of the Code.

Rule 014 (Waiver for emergency and temporary installations) specifies what can be done to restore service during an emergency or to provide service during an emergency and what are the requirements for temporary installations.

The rule allows emergency installations to meet lower clearances for overhead lines and the use of underground cable to be laid on the ground to provide or restore service quickly and safely. Generally emergencies occur when disastrous storms cause severe damage to overhead lines and equipment that necessitates abnormal yet safe construction to restore service to the affected area. The emergency installations must be replaced as soon as practical after the emergency has ended.

Temporary installations are done to provide service during construction of residences, buildings, or other large construction projects where utility service is required for construction. Temporary lines may be required to provide clearances for roadway or bridge construction. Temporary lines may be built using less than normally specified strength materials, but the overhead lines must meet the clearance requirements. There are no time constraints on temporary installations.

Rule 015 (Intent) explains what is required when the Code uses the action words “shall” and “should,” which can be found in the rules throughout the Code. The rule also defines the effects of footnotes, *EXCEPTIONs*, *RECOMMENDATIONs*, *EXAMPLEs*, and *NOTEs* that may be added to the rules.

Rule 016 (Effective date) states the date that this Code edition will become effective. This date is 180 days after the publication date which is usually August 1. Therefore, the effective date is usually the following February 1. The Code may be used during this six-month period if desired. The 180 days provides time for utilities to update their design standards and for regulatory authorities to review and approve the Code.

Rule 017 (Units of measure) explains that numerical measurements in the Code are stated in the metric system and the customary inch, foot, and pound measurements. The numbers in the tables are not exactly the same since the values are rounded off to convenient numbers; generally, 1 decimal place is used in the customary unit tables, and 2 decimal places are used in the metric tables. For example, the clearance between an overhead electric supply conductor energize at 120 volts and a communication cable is 1 meter in the metric table and 40 inches in the customary unit table; the difference between the actual measurements is less than 0.5 inches. Both are considered equivalent and safe.

Rule 018 (Method of calculation) requires the resultant of calculations to be rounded off to the nearest significant digit unless the rule specifies a different method.

The rules of the NESC detail the requirements that are practical and necessary to reduce exposure to known or expected hazards to personnel or equipment. To that end, the NESC Subcommittees have been diligent in the development and analysis of data concerning (1) the construction, operation, and maintenance of lines and equipment and (2) the problems and benefits of each method.

The Code is prepared by a diversified group of active participants; they represent a wide variety of public and industry viewpoints and bring to the codification process a great depth of experience covering the entire field of utility system construction, operation, maintenance, and use. The process is public, and proposed changes are widely distributed, so that interested parties may comment and provide additional data. These rules, therefore, reflect the considered judgment of a wide body of expertise. The rules are reviewed on a regular basis; they are revised, as necessary, to reflect changes in materials or methods and, as experience indicates, to recognize changes in the nature and degree of problems presented.

010. Purpose

- A. The purpose of the NESC is the practical safeguarding of persons during the installation, operation, and maintenance of electric supply and communication facilities, under specified conditions.

NOTE: NESC rules are globally recognized and intended to provide a practical standard of safe practices that can be adopted by public utilities, private utilities, state or local utility commissions or public service commissions, or other boards or bodies having control over safe practices employed in the design, installation, operation, and maintenance of electric supply, communication, street and area lighting, signal, or railroad utility facilities.

- B. NESC rules contain the basic provisions, under specified conditions, that are considered necessary for the safeguarding of the public and utility workers (employees and contractors).
- C. This Code is not intended as a design specification or as an instruction manual, nor is it intended to provide design criteria for abnormal events such as, but not limited to, actions of others or weather events in excess of those specified herein.

Rule 010. *(This rule was formed in 1981 from previous Rules 100, 200, 202, 210, 211, 300, 310, 311, and 400.)*

In the 1977 Code and later editions, it is made clear by choice of wording that the purpose of these rules is the practical safeguarding of persons during the installation, operation, or maintenance of overhead and underground supply and communication lines and their associated equipment. The NESC Subcommittees made every effort to emphasize that it is not merely enough that an installation be *possible*—it must be *practical* as well—to qualify as a requirement of the Code. It is unfortunate that earlier editions sometimes used the word “practicable” and that some individuals instigating legal actions have tried to infer that the word was intended to convey the meaning “possible.” It is clear from the official Discussion of the very earliest codified edition, the 1916 Code, that general practicality of installation was intended. This emphasis on “practicality,” as opposed to the extreme requirement of “possibility,” is especially noted in Rule 202 (Design and Construction) of the 1916 Code and its Discussion. The language of that rule is as follows: “202—*Design and Construction. All electrical supply lines and equipment shall be of suitable design and construction for the service and conditions under which they are to be operated, and all lines shall be so installed and maintained as to reduce the life hazard as far as practicable.*”

The language of the 1916 Code Discussion is as follows: “*This rule...strikes the keynote of the code. There is no intention of requiring or even recommending more expensive construction than good practice requires and good business justifies. But it must be remembered that the public in the end pays whatever extra cost is caused by requiring safer and better construction, and hence the public may rightly require a good degree of safety in the construction...*”

Rules 101, 201, and 301 of the 1920 Code and later editions included either exactly or substantially the following language: “*The rules shall apply to all installations except as modified or waived by the proper administrative authority. They are intended to be so modified or waived whenever they involve expense not justified by the protection secured, or for any other reasons are impracticable; or whenever equivalent or safer construction can be more readily provided in other ways.*”

It is clear that the original intent was to achieve a reasoned balance between the public’s needs for both safe and economical utility service, reflecting both the expected degree of a problem and the degree of difficulty in solving the problem. That balance has been continued in the intervening years, as operating conditions have changed and new equipment and installation types have become available. Although these words no longer appear in the NESC, their effect does. The practical experience of the intervening years has led to the inclusion of more stringent requirements in some areas and more relaxed requirements in others. As a result, the NESC is itself the compilation of design, installation, operation, and maintenance experience that has been shown over the history of utility construction to be appropriate to “reduce the life hazard as far as practicable.”

The NESC comprises specific actions required in recognition of specific conditions. These actions are based upon the potentially conflicting activity that is normally encountered or reasonably anticipated. For example, in all areas except those limited to pedestrians or restricted-height vehicles, the clearances above grade plan for a 4 m (14 ft) high truck (see NESC Appendix A). Vertical clearances are based upon the reference distance based on potentially conflicting activity plus the clearance building block that includes appropriate mechanical and electrical components based upon

the part, conductor, or cable above the area. Where the conditions encountered in a given local situation are those specified within the NESC, the required actions constitute good practice for the specific conditions.

Where the local conditions differ in some particular way from those specified in the NESC, it is the responsibility of the appropriate party to recognize the differences in conditions with actions that constitute good practice under such differing conditions. Such practice may be reflected in the design of the installation, the construction practices, the maintenance practices, the operating practices, or some combination of the above, as applicable for the given local conditions. An example of such an area is a lumber yard, where forklifts are normally encountered or reasonably anticipated with vertical extensions exceeding a 4.0 m (14 ft) truck. In such a case, the expected height of the forklift can be added to the appropriate mechanical and electrical component from Table A-1 of NESC Appendix A to produce the appropriate clearance. However, the better way to perform the same task would be to add the difference between the expected conflicting activity and the applicable reference dimension from NESC Appendix Table A-1 (i.e., a 4.0 m [14 ft] truck in this case) to the clearance in the applicable table, thus recognizing the difference in conditions. The result is the same, but it avoids any problem with pulling the wrong mechanical and electrical component from NESC Appendix Table A-2, which is a more complicated table than Table A-1.

It is important to note that the NESC recognizes the limitation on expected activities around electrical facilities required under federal and state regulations, Occupational Health and Safety Administration (OSHA) regulations, and high-voltage line safety acts. Those performing acts around power lines have a personal responsibility to plan and control their actions so as to avoid contact with power lines.

The rules for lines differ from those for stations. In stations, the apparatus, equipment, and wires are confined to limited areas where access is restricted to trained personnel. In these latter cases, the safeguarding of persons by (1) actual enclosure of the current-carrying parts, (2) use of barriers, or (3) elevation of such parts beyond reach is not only desirable but generally feasible.

With overhead lines, on the other hand, the wires and equipment are not confined to limited areas and, with few exceptions, are not under constant observation by trained personnel. Safeguarding by enclosure is feasible with underground lines and, in fact, is in most cases essential to operation. For overhead lines, however, isolation by elevation generally must be depended upon for the safety of persons in the vicinity. The elevations required for effective isolation of overhead lines must be greater than ordinarily would be required inside buildings; the voltages are usually higher, and the height of expected traffic is usually greater.

Practice and experience have determined reasonable limits for elevation of lines and equipment and for the necessary strength of their construction. These rules are intended to include the more important requirements from the standpoint of safety, both to the public and to utility workers. Clearance requirements are determined relative to the degree of hazard involved, and strength requirements necessary to meet the required clearances are determined by (1) the degree of safety problem presented by the installation and (2) the mechanical loads to which it is assumed the lines may be subjected.

The NESC is a performance code, not a set of design specifications. The NESC construction rules specify *what* is to be performed, not *how* it is to be accomplished. For example, to meet the vertical clearance required above a corn field, either (1) taller structures spaced farther apart or (2) shorter structures spaced closer together may be used. The NESC is indifferent to what type of structures or materials are used, as long as applicable clearances and strength requirements are met.

In essence, the rules of the NESC give the basic requirements of construction that are necessary for safety. If the responsible party wishes to exceed these requirements for any reason, he may do so for his own purpose, but need not do so for safety purposes. For example, if the combination of required pole placement and overhead clearance requirements indicated that a 11.4 m (37.5 ft) pole would be needed, a 12.2 m (40 ft) pole could be used. Because poles are inventoried in 1.50 m (5 ft) increments for economy purposes, the additional 0.8 m (2.5 ft) of conductor attachment height would be for economy purposes; it is not required for safety. Thus, even though older editions of the Code sometimes used the word “minimum” for clearance or other requirements, the wording generally used in later editions is “not less than” to indicate the basic amount that is required for *safety* purposes.

The 1990 Code was specifically editorially revised to delete the use of the word “minimum” because of intentional or inadvertent misuse of the term by some to imply that the NESC values were some kind of minimum number that should be exceeded in practice; such is not the case. The NESC is the best information that we have available about what needs to be done for safety and what must not be done in various circumstances; it is based on the experiences of hundreds of thousands of installations

located in and serving areas with a variety of conditions in a variety of ways. The NESC is *the* national standard for safety in the installation, maintenance, and operation of electric supply and communication system facilities.

Rule 010 is a general statement of the purpose of the Code; the bulk of the rules are concerned with applying this principle in detail to the various construction situations. Where a specific rule provides detailed requirements for particular conditions, the general “purpose” rule is considered to be superseded by the specific requirements.

NOTE: Where an individual rule or subrule consists of an overarching paragraph and several distinctive subparts, both the overall requirements and the applicable subrequirements must be met.

The 2012 Code significantly revised the language of Rule 010 by adding “affected property” and “utility facilities” to the purpose rule as a result of a joint NESC/NEC Task Force that addressed the Purpose and Scope rules of both the NESC and the NEC to limit confusion as to which code applies in different circumstances. The 2017 Code further clarified the language by removing the verbiage “affected property” from the purpose rule due to its being vague and not fully understood.

The 2023 Code removed the language “utility facilities” from Rules 010A and 010B to further clarify that the purpose of the NESC is the safeguarding of persons (public and employees) and not utility facilities. It was not clear as to the intent of safeguarding utility facilities as it applies to a safety code.

In addition, language was added to Rule 010C to make clear that it is not practical or reasonable to expect the Code to develop criteria for abnormal or extreme weather events. For example, the Code cannot be expected to have rules to safeguard a supporting structure from an out-of-control vehicle that veers off an established roadway or safeguard facilities from hurricanes or tornadoes.

011. Scope

A. Covered

See Figure 011-1.

The NESC covers:

1. Supply and communication facilities (including metering) and associated work practices employed by a public or private electric supply, communications, railway, trolley, street and area lighting, traffic signal (or other signal), irrigation district or other community owned utility, or a similar utility in the exercise of its function as a utility.
2. The generation, transmission, and distribution of electricity, lumens, communication signals, and communication data through public and private utility systems that are installed and maintained under the exclusive control of utilities or their authorized representatives.
3. Utility facilities and functions of utilities that either (a) generate energy by conversion from some other form of energy such as, but not limited to, fossil fuel, chemical, electrochemical, nuclear, solar, mechanical, wind or hydraulic or communication signals, or accept energy or communication signals from another entity, or (b) provide that energy or communication signals through a delivery point to another entity.
4. Street and area lights that provide a supply of lumens where these facilities are supplied from the line side of the service point by underground or overhead conductors maintained and/or installed under the exclusive control of utilities (including their authorized contractors or other qualified persons).
5. Utility facilities and functions on the line side of the service point supplied by underground or overhead conductors maintained and/or installed under exclusive control of utilities located on public or private property in accordance with legally established easements or rights-of-way, contracts, other agreements (written or by conditions of service), or as authorized by a regulating or controlling body.

NOTE: Agreements to locate utility facilities on property may be required where easements are either (a) not obtainable (such as locating utility facilities on existing rights-of-way of railroads or other entities, military bases, federal lands, Native American reservations, lands controlled by a port authority, or other governmental agency), or (b) not necessary (such as locating facilities necessary for requested service to a site).

6. Wiring within a supply station or in an underground facility that is (a) installed in accordance with Part 1 or Part 3 of this Code and maintained under the exclusive control of utilities and (b) necessary for the operation of the supply station or underground facility.
7. Utility facilities installed, maintained, and controlled by utilities on surface or underground mine sites, including overhead or underground distribution systems providing service up to buildings or outdoor equipment locations on the line side of the service point.
8. Similar systems to those listed above that are under the exclusive control of qualified persons and authorized by a regulating or controlling body, including those associated with an industrial complex or utility interactive system.

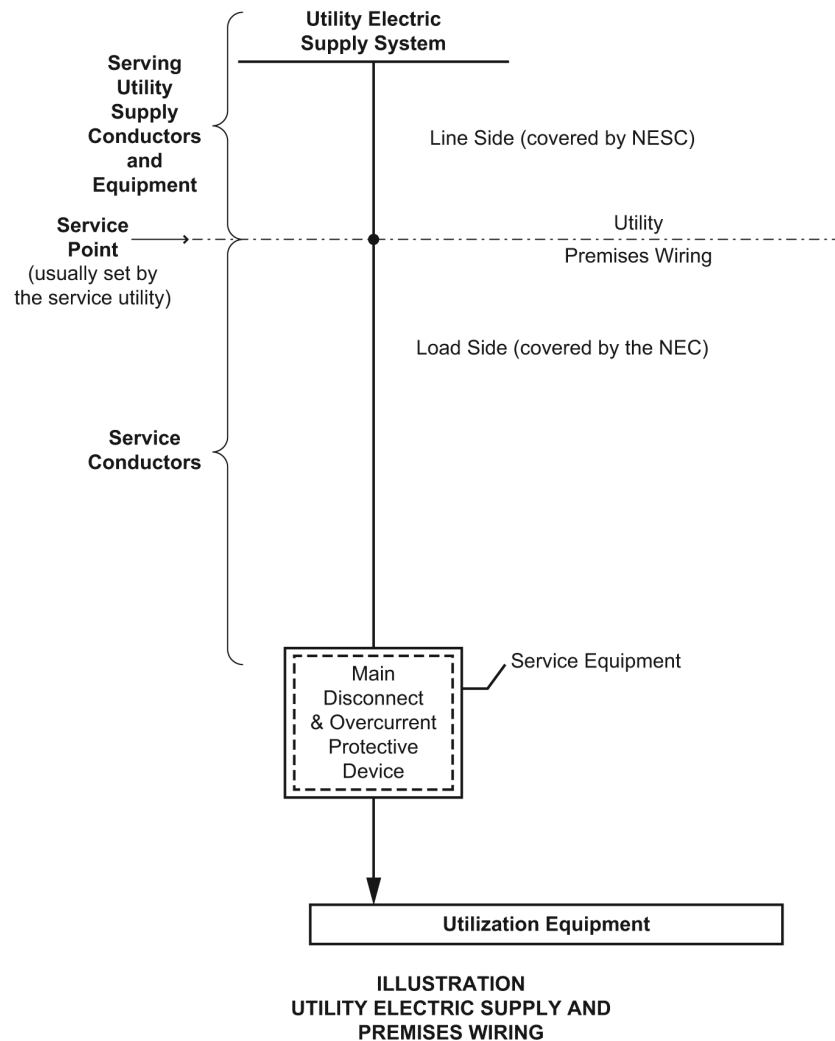


Figure 011-1—Service point—General illustration of what is covered and not covered by the NESC