

## Significant Differences between 2009 and 2012 Editions of NFPA 70E\*

\*Note: This table does not include all changes between the two editions.

Article	Change
90 Introduction	<p>“Electrical inspection” was added to the list of covered activities.</p> <p>The scope was revised to clarify that the standard addresses electrical safety-related work practices.</p>
100 Definitions	<p>A definition for “incident energy analysis” was added.</p> <p>“Arc flash protection boundary” was replaced with “arc flash boundary (AFB).”</p> <p>“Flame resistant (FR)” was replaced by “arc rated (AR).”</p> <p>The “Working On” definition was revised to clarify that working on addresses intentional energized electrical contact.</p>
110.1(D)	A requirement for a documented meeting between contractor and host employer was added.
110.2(C)	<p>Training requirements were clarified to require emergency training for employees exposed to shock hazards and those responsible for emergency actions.</p> <p>Emergency training now must also include the use of Automated External Defibrillators (AEDs).</p>
110.2(D)(3)	A requirement was added to perform retraining at intervals not exceeding 3 years.
110.3(E)	The electrical safe work program now must include procedures for working within the arc flash boundary (in addition to the procedures already required for working within the Limited Approach Boundary).
110.3(F)	The Hazard/Risk Assessment procedure must identify the process employees must follow prior to beginning their work to identify hazards and assess risk, including potential risk mitigation strategies.
110.3(H)(1) and (2)	<p>New audit requirements include:</p> <ul style="list-style-type: none"> <li>• Electrical safety program audits, which must be performed at least every 3 years.</li> <li>• Field work shall be audited to verify conformance with the electrical safety program.</li> </ul> <p>The audit must be documented. Appropriate revisions to the training program must be made in response to audit findings.</p>
110.4(A)(1)	Only qualified persons may perform tasks such as testing, troubleshooting, and voltage measuring within the limited approach boundary.

Article	Change
110.4(C)	<p>Ground-fault circuit-interrupter (GCFIs) requirements were added. Employers must provide GCFIs where required by applicable codes or standards.</p> <p>Employers must also provide GFCI protection when an employee is outdoors and operating or using cord- and plug-connected equipment supplied by 125-volt and 15-, 20-, or 30-ampere circuits.</p>
110.5	<p>The employer must take steps to identify underground electrical lines and equipment and to conduct a hazard analysis to identify safe work practices to be followed during excavation.</p>
120.2(B)(2)	<p>Lockout/Tagout retraining is now required when the procedure is revised.</p>
120.2(D)(1)	<p>The <i>individual qualified employee control procedure</i>, which allowed work to be performed without the placement of lockout/tagout devices on the disconnecting means under specific circumstances, has been deleted and is no longer an acceptable form of control.</p>
130.1	<p>All requirements of Article 130 apply whether an incident energy analysis is conducted or the applicable table is used in lieu of the incident energy analysis.</p>
130.2	<p>Energized electrical conductors and circuit parts must be put in an electrically safe condition if (1) the worker is within the limited approach boundary or (2) the conductors and circuit parts are not exposed (so there is not a shock hazard) but there is an arc flash hazard. Electrical disconnects are an exception if a risk assessment has been performed and the risk is found to be acceptable.</p>
130.2(B)(1)	<p>An Energized Electrical Work Permit is required when working within the limited approach boundary or the arc flash boundary of exposed energized electrical conductors or circuit parts that are not placed in an electrically safe work condition.</p>
130.2(B)	<p>The permit must include the results of the shock hazard analysis and the arc flash analysis.</p>
130.5	<p>The exception to arc flash hazard analysis in the 2009 edition was replaced by an informational note that arc flash analysis may not be needed for certain systems less than 240V and a referral to IEEE 1584 for more information.</p>
130.5(A)	<p>The arc flash boundary for systems 50 volts or greater is the distance at which the incident energy equals 1.2 cal/cm<sup>2</sup>.</p>
Tables 130.4(C)b and 130.4(C)(15)(b)	<p>Tables were added to address Direct Current (DC) approach boundaries and hazard/risk classification respectively.</p>

Article	Change
130.5(C)	The equipment labeling requirement was changed to specify electrical equipment and to provide numerous examples of the type of equipment that require labels. The label must now include all of the following: <ol style="list-style-type: none"> <li>1. At least one of the following:               <ol style="list-style-type: none"> <li>a. Available incident energy and the corresponding working distance</li> <li>b. Minimum arc rating of clothing</li> <li>c. Required level of PPE</li> <li>d. Highest Hazard/Risk Category (HRC) for the equipment</li> </ol> </li> <li>2. Nominal system voltage</li> <li>3. Arc flash boundary</li> </ol>
130.7(C)(1)	When working in the restricted approach boundary, PPE must be worn in accordance with 130.4. When working in the arc flash boundary, PPE must be worn in accordance with 130.5
130.7(C)(5)	A new requirement to wear hearing protection while working within the arc flash boundary was added.
130.7(C)(9)	Garments that are not arc rated are not permitted to be used to increase the arc rating of a garment or of a clothing system.
130.7(C)(10)(b)	An arc-rated balaclava must be used with an arc-rated face shield when the back of the head is within the arc flash boundary. An arc-rated hood may be used instead of an arc-rated face shield and balaclava.
130.7(C)(10)(c)	Face shields with a wraparound guarding to protect the face, chin, forehead, ears, and neck area must be used.
130.7(C)(10)(d)	A definition of heavy duty leather gloves—defined as gloves made totally of leather 0.03 inches thick (0.7 mm) was added. These gloves are acceptable arc flash hand protection up to 10 cal/cm <sup>2</sup> .
Table 130.7(C)15(a)	Hazard/risk category tables have been changed to include short-circuit current, fault clearing time, and potential arc flash boundary information in each of the major equipment categories instead of in specific notes.
Table 130.7(C)16	Hazard/risk category 2* was deleted. The tasks previously assigned 2* were reassigned category 2.