

**NATIONAL ELECTRICAL SAFETY CODE
 SUBCOMMITTEE 3
 ELECTRIC SUPPLY STATIONS
 FINAL MEETING MINUTES**

**OCTOBER 21, 1998
 IEEE
 PISCATAWAY, NJ**

Name	Organization	10/21
Alton Comans	AEIC	x
George Zaczek	APPA	x
Keku Mistry	ATIS	x
David Turnberg	EEI	x
Casimir Hamerla	EEI	x
Steve Kollmann	EEI	x
Donnie Young	EEI	a
Jim Tomaseski	IBEW	x
Bruce Dietzman	IEEE	x
Ray Pope	IEEE	x
Gary Engmann	IEEE	a
Jack Christofersen	IEEE	x
Bob Sipler	NARUC	x
Greg Rahman	NECA	a
Burch Lewis	SEEX	x
Thomas McNamara	NEMA	x
K. C. Labbe (alt)	SEEX	a
Sue Vogel	IEEE staff	x

x=Present
 a=Absent

Jack Christofersen, chaired the meeting in the absence of Gary Engmann. Bob Sipler acted as Secretary during the meeting and recorded the voting. Sue Vogel recorded the minutes.

Gary Engmann, SC3 chair had emergency open heart surgery last week. All members wished him a speedy recovery.

Rule 110A2
CP 2316

Subcommittee Recommendation: Accept.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 110A2
CP 2288

Subcommittee Recommendation: Reject.

Subcommittee Comment: These are design and maintenance issues and should not be part of the Code.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 110B1
CP 2264

Subcommittee Recommendation: Accept in principle. Add the proposed text as a note to Rule 110B1 as modified as follows:

1. Construction

They shall be as much as practical noncombustible.

Note: This rule is not intended to prevent wood poles from being used to support conductors or equipment in electric supply stations.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 110A1
CP 2249

Subcommittee Recommendation: Accept as modified.

Modify rule 110A1b as follows:

- b. A combination of 1.80 m (6 ft) or more of fence fabric and an ~~300 mm (1 ft)~~ extension utilizing three or more strands of barbed wire to achieve an overall vertical height of not less than 2.13 m (7 ft).

Subcommittee Comment: SC3's recommending wording achieves the intent, but we believe that specifying the chain link mesh opening lacks supporting information.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 111B
CP 2250

Subcommittee Recommendation: Reject.

Subcommittee Comment: Temporary personnel typically carry auxiliary lighting (flashlights) for use in their normal activities. The Code rules that deal with spacing, guarding, etc. should be sufficient to protect any experienced maintenance personnel who is inadvertently caught in the dark.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 120
CP 2208

Subcommittee Recommendation: Accept as modified

120. General Requirements

- A. All electric equipment shall be constructed, installed, and maintained so as to safeguard personnel as far as practical.
- B. The rules of this section are applicable to both ac and dc supply stations.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 123C
CP 2181

Subcommittee Recommendation: No action taken.

Subcommittee Comment: SC3 will not take action on this; it is not in the form of a change proposal.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 124C3
CP 2251

Subcommittee Recommendation: Accept as modified.

Change the title of Rule 124C3 to read as follows.

Supplemental Railings Barriers or Guards Within Electric Supply Stations

Revise the language of Rule 124C3 as follows.

~~Railings are not substitutes for complete guards.~~ If the vertical distance in Table 124-1 cannot be obtained, railings or fences may be used. Railings or fences, if used, shall be not less than 1.07 m (3.5 ft) high and shall be located at a horizontal distance of at least 900 mm (3 ft) [and preferably not more than 1.20 m (4 ft)] from the nearest point of the guard zone that is less than 2.60 m (8.5 ft) above the floor or grade (see Fig 124-2).

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Table 124-11
CP 2206

Subcommittee Recommendation: Accept as modified.

Add footnote 4 designator to columns 2 and 3 adjacent to (A) and (B) as illustrated below. The table will be inserted before the footnotes.

Table 124-1 (Continued)
Part D – High Voltage Direct Current (based on Transient overvoltage)

Maximum design voltage conductor to ground	Transient Overvoltage per unit (A) ⁴	Transient Overvoltage Line to gnd (B) ⁴	Vertical clearance of unguarded parts	Horizontal clearance of Unguarded Parts	Clearance guard to live parts
kV		kV	m	m	m
250	1.5 or lower	375	3.81	2.13	1.22
	1.6	400	3.89	2.22	1.30
	1.7	425	3.97	2.30	1.38
	1.8	450	4.05	2.38	1.46
400	1.5 or lower	600	4.54	2.87	1.95
	1.6	640	4.67	3.00	2.08
	1.7	680	4.88	3.21	2.29
	1.8	720	5.12	3.45	2.53
500	1.5 or lower	750	5.29	3.62	2.70
	1.6	800	5.60	3.92	3.01
	1.7	850	5.96	4.29	3.37
	1.8	900	6.35	4.67	3.76
600	1.5 or lower	900	6.35	4.67	3.76
	1.6	960	6.73	5.06	4.14
	1.7	1020	7.13	5.45	4.54
	1.8	1080	7.57	5.89	4.97
750	1.5 or lower	1125	7.90	6.23	5.31
	1.6	1200	8.44	6.76	5.85
	1.7	1275	9.06	7.38	6.47
	1.8	1350	9.72	8.04	7.13

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127A3c
CP 2217

Subcommittee Recommendation: Accept as modified.

de-energized: Disconnected from all sources of electrical supply by opening switches, disconnectors, jumpers, taps, or other means.

NOTE: A de-energized circuit could be electrically charged through various means, such as induction from energized circuits.

Subcommittee Comment: SC8 is reviewing use of the definition for de-energized throughout the Code.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127L
CP 2282

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127K
CP 2281

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127F
CP 2280

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127E
CP 2279

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127D
CP 2278

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127C
CP 2277

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127A5

CP 2276

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127A3

CP 2275

Subcommittee Recommendation: Accept as modified.

3. Adequate ventilation exists when the method of ventilation will limit the likelihood of accumulation of significant quantities of vapor-air concentrations from exceeding 25 percent of the lower flammable limit.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127A2

CP 2274

Subcommittee Recommendation: Accept as modified.

Move text contained in current Rule 127A2 as modified below to the end of Rule 127A1. Renumber subsequent rules.

Electric equipment in other locations in which flammable gases or vapors may exist shall be in accordance with the NEC, Article 500-5, or the locations shall be adequately ventilated.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 127
CP 2273

Subcommittee Recommendation: Accept.

Subcommittee Comment: All referenced standards are subject to review for future editions prior to adoption of the 2002 NESC.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 131
CP 2139

Subcommittee Recommendation: Reject.

Subcommittee Comment: The present Code language is adequate. This section is not intended to be a work rule for lockout/tagout.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Sipler, Turnberg, Zaczek

Negative: Pope, Tomaseski

Explanation of Vote:

Pope: This rule should be updated to accept lockout/tagout practices.

Tomaseski: OSHA 29 CFR 1926.950 (Subpart V – Power Transmission and Distribution), Paragraph (d) De-energizing lines and equipment, contains provisions for the treatment of switches and disconnectors when work will be performed under de-energization conditions. This standard, published in the early 1970’s, will be revised within the next few years. The current draft of the revised Subpart V, in § 1926.961 – De-

energizing lines and equipment for employee protection, requires switches, disconnectors, jumpers, taps, etc., to be rendered inoperable, unless the design does not so permit, and tagged.

This Standard, Subpart V, is the only current standard that does not require lockout/tagout procedures for worker protection under certain conditions. Other standards containing provisions when de-energizing equipment for worker protection require rendering controls, switches, etc., inoperable and lockout/tagout procedures applies in all cases. These standards include:

- 1) OSHA 29 CFR Part 1910.333, Subpart S
Electrical Safety-Related Work Practices
- 2) OSHA 29 CFR Part 1910.147
Control of Hazardous Energy Source (Lockout/Tagout)
- 3) OSHA 29 CFR 1910.269
Electric Power Generation, Transmission, and Distribution
- 4) NFPA 70-E
Employee Work Places, Electrical Safety Requirements

I don't believe the intent of the Subcommittee is to allow this old rule to remain as is so that OSHA will adopt this approach to worker safety, after the agency has developed rules that mandate lockout/tagout procedures for all work locations.

Rule 150
CP 2103

Subcommittee Recommendation: Reject.

Subcommittee Comment: SC3 does not agree with the intent of this change.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 150
CP 2102

Subcommittee Recommendation: Accept.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Negative: Comans

Explanation of Vote:

Comans: The change does not improve or clarify the existing rule in the Code.

Rule 150

CP 2101

Subcommittee Recommendation: Accept.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

CP 170

CP 2258

Subcommittee Recommendation: Accept.

170.Conspicuous and unique markings shall be provided at the device and at any remote operating points to identify the equipment controlled.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 190

CP 2362

Subcommittee Recommendation: Reject.

Subcommittee Comment: The rule as written is adequate. The submitter has failed to provide sufficient substantiation for the change.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 192
CP 2317

Subcommittee Recommendation: Accept.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Part 1
CP 2205

Subcommittee Recommendation: Endorse concept of establishing a working group.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, McNamara, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Negative: Lewis, Kollmann, Hamerla, Mistry

Explanation of Vote:

Lewis, Kollmann, Hamerla, Mistry: No basis has been demonstrated for safety concerns to require the clearances to be the same, when there are distinct reasons for their differences.

Part 1
CP 2203

Subcommittee Recommendation: Reject.

Subcommittee Comment: Section 16 adequately covers installation of conductors.

Vote on Subcommittee Recommendation: Reject.

Affirmative: : Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Rule 110B2
IR 507

Subcommittee Recommendation: Draft a change proposal via e-mail correspondence to address this issue. Burch Lewis, Cass Hamerla and Bob Sipler will prepare a draft and correspond with the rest of SC3 for inclusion in the Preprint by 1 May 1999.

Vote on Subcommittee Recommendation:

Affirmative: Christofersen, Comans, Dietzman, Hamerla, Kollmann, Lewis, McNamara, Mistry, Pope, Sipler, Tomaseski, Turnberg, Zaczek

Table 124-1 and Table 273-1
IR 508

Subcommittee Recommendation: No action required.

Rule 125B
IR 505

Subcommittee Recommendation: No action required.

Rule 125A3
IR 478

Subcommittee Recommendation: No action required.

Rule 150
IR 493

See CP 2102.

Rule 161A
IR 494

Subcommittee Recommendation: No action required.

Rule 171 and 173A
IR 482

Subcommittee Recommendation: No action required.

Working Group 3.3

Two additional members will participate: Cass Hamerla and Jim Tomaseski. Other members are Steve Kollmann (chair) and John Troglia.

Task Force 5.1.9 Seismic Considerations

SC3 agrees Rule 110C, Electric Equipment, statement "All stationary equipment shall be supported and secured in a manner consistent with reasonably expected conditions of service" adequately covers any seismic considerations.