Florida Board of Professional Engineers
Electrical Rules Committee Minutes
March 21, 2017
2 p.m. FBPE Office via conference call
Tallahassee, FL
888-392-4560

A. Call to Order, Roll Call, Determination of Quorum and Address Absences

Mr. Fleming called the meeting to order. Ms. Sammons called roll.

**Board Members Present:**
Kevin Fleming, P.E., Committee Chair
Warren Hahn, P.E.

**Board Members Absent:**
John Pepper, P.E., S.I.

**Attorney General’s Office:**
Lawrence Harris, Assistant Attorney General, Counsel to the Board

**Staff Members Present:**
Rebecca Sammons, Assistant Executive Director

**Public Advisors:**
Art Nordlinger, P.E., IEEE
Ralph Painter, P.E.
Alfonso Fernandez-Fraga, P.E.

B. Introduction of Guests and Announcements

C. Minutes and Actions from previous meeting

Upon motion by Mr. Hahn, seconded by Mr. Fleming to approve the minutes as presented. The motion passed.

Mr. Fleming talked the rules and where the committee left off at the last meeting.

Mr. Fleming went over the proposed changes. The proposed changes are as follows:
CHAPTER 61G15-33
RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF
ELECTRICAL SYSTEMS

61G15-33.001 General Responsibility
61G15-33.002 Definitions
61G15-33.003 Design of Power Systems
61G15-33.004 Design of Lighting Systems
61G15-33.005 Design of Communications Systems
61G15-33.006 Design of Alarm, Control, and Signaling Systems
61G15-33.007 Design of Lightning Protection Systems
61G15-33.008 Design of Grounding Systems
61G15-33.009 Design of Instrumentation and Control Systems (Repealed)
61G15-33.010 Certification of Electrical Systems of Public Interest

61G15-33.001 General Responsibility.
Electrical Engineering documents shall be prepared in accordance with generally accepted
engineering standards applicable technology and with the requirements of the authority having
jurisdiction. The documents shall identify the Engineer of Record for the electrical systems
project. Electrical Engineering documents shall comply demonstrate compliance with the
requirements of the applicable codes and standards as defined herein. The Engineer of Record is
responsible for determining the applicability of appropriate codes and standards to a given
project. In the event the codes and standards fail to ever or address a specific requirement or
situation, alternative research, test results, engineering data, and engineering calculations shall
be utilized. New technology may be utilized when said technology has been demonstrated to
provide equivalent or improved performance. Electrical Engineering documents for
Construction documents shall indicate the nature and character of the electrical work and shall
describe, label and define the required electrical systems components, processes, equipment
and material and its structural utility support systems. Both the Engineer of Record for the
electrical system and the delegated engineer, if utilized, shall comply with the requirements of
the general responsibility rules, Chapter 61G15-30, F.A.C., and with the requirements of the
more specific rules contained herein. The Engineer of Record for the Electrical System(s) shall
provide design requirements in writing to the delegated engineer if one is used and shall review
the design documents of the delegated engineer for conformance to his the written instructions
in accordance with Rule 61G15-30.005, F.A.C. Any Electrical Delegated Engineering
Documents prepared by a delegated engineer and so reviewed must be included in the final set of
documents filed for permit unless required by the permitting entity to be submitted
independently.
Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History–New 5-19-93,
Formerly 21H-33.001, Amended 11-13-08,______.

61G15-33.002 Definitions.
(1) Engineer of Record for the Electrical Systems. The Florida Professional Engineer who
develops the electrical system design criteria or performs the analysis and is responsible for the
preparation of the Electrical Engineering Documents for the project.
(2) Electrical Component. An individual electrical device to be part of an electrical system.
(3) Electrical. Any device or mechanism that operates due to the action of electricity.
(4) Electrical System. Any system, assembly of electrical components, materials, utilities,
equipment, work system, machines, products or devices which require electrical energy in order
to perform its intended function.

(5) Electrical Engineering Documents. All electrical drawings, specifications, reports, calculations, data and other documents utilized to establish the overall design and requirements for the construction, alteration, modernization, repair, demolition, arrangement, and/or use of the electrical system, or analysis or recommendations, as prepared by the Engineer of Record for the Electrical System. Electrical Engineering Documents shall additionally meet the requirements of Rule 61G15-30.003, F.A.C., Engineering Documents.

(6) Electrical Submittals. Submittals are catalog information on standard products or drawings prepared solely to serve as a guide for fabrication and installation and requiring no engineering input. Such these submittals are not Engineering Documents or Delegated Engineering Documents and do not require the seal of a Florida Professional Engineer.


(8) Electrical Delegated Engineering Documents. Electrical Engineering Documents prepared by a delegated engineer to whom the Engineer of Record for the Electrical System has delegated responsibility for the design of an electrical component or system and which are signed, sealed and dated by the delegated engineer.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History – New 5-19-93, Formerly 21H-33.002, Amended 11-13-08, __________.


(1) Power systems convey or distribute electrical energy. Items to be considered included in the design and analysis of power these systems are, as applicable to the particular project: steady state and transient loads characteristics, short circuit availability, arc flash potential, analysis and protection (design and analysis), load flow, voltage drop, effects of harmonics, power factor, and protective device coordination.

(2) Electrical Engineering Documents applicable to the design of power systems shall, at a minimum, indicate the following:

(a) Power Distribution Riser Diagram with short circuit values.
(b) Conductor Ampacities (sizes) (AWG or kcmil) and insulation type, or cable assemblies characteristics.
(c) Circuit interrupting devices, ratings and fault current interrupting capability.
(d) Short circuit analysis and short circuit interruption or withstand rating of distribution components.
(d) Location and characteristics of any surge protective devices, if included in the engineering design.
(e) Main and distribution equipment, control devices, locations and ratings sizes.
(f) Voltage drop calculations for the feeders and customer-owned service conductors are required. Additionally, the documents shall state the reasons why the two percent limit for feeders and customer-owned service conductors are not being met, if applicable.
(g) Circuitry of all outlets, equipment and devices.
(h) Feeder and service capacity calculations, load computations.
(i) Electrical legends.
(j) Grounding and bonding.
Instrumentation and control when necessary for safe operation or to show intended function where required.

Documents applicable to power systems filed for public record shall, also at a minimum, contain information as required by the Florida Building Code, incorporated by reference in Rule 61G15-18.001(6), F.A.C.

Committee Members to determine language regarding arch flash potential study/language to address what must be included if EOR determines arc flash potential should be included in design. Installation and testing requirements of required emergency and standby power systems.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-33.003, Amended 11-13-08,_______.

61G15-33.004 Design of Lighting Systems.

(1) Lighting systems convert electrical energy into light. Items to be considered included in the lighting design and analysis of lighting systems are as applicable to the particular project: average and minimum illuminance, equivalent spherical illuminance, uniformity ratios, visibility comfort probability, special purpose lighting, impacts of light intrusion, light trespass, security and safety, and the requirements of the Florida Energy Efficiency Code, Chapter 13, Florida Building Code, Energy Conservation, (2014) which is incorporated by reference in Rule 61G15-18.011, F.A.C.

(2) Electrical Engineering documents for lighting systems shall, at a minimum, indicate the following:

(a) Lighting fixture performance specifications and arrangements.
(b) Emergency lighting egress and exit Lighting, and illuminated exit markings and their ancillary equipment such as inverters and batteries.
(c) Equipment legend Exit Lighting.
(d) Lighting control and circuiting.
(e) Calculated values to demonstrate compliance with the Florida Energy Code for Building Construction.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History—New 5-19-93, Formerly 21H-33.004, Amended 11-13-08,_______.

61G15-33.005 Design of Communications Systems.

(1) Communications systems are utilized to convey voice and data. Items to be considered included in the design and documents or analysis of communication these systems are as applicable to the particular project: human factors engineering, cabling requirements, installation requirements, performance requirements, backup power requirements, the interrelationship of the various systems and applicable standards and regulatory requirements.

(2) Electrical Engineering documents for communications systems shall, at a minimum, indicate the following:

(a) System riser diagram for each cabling system.
(b) Equipment legend.
(c) Cabling type and performance data of the transmission.
(d) Device type and locations.
(e) Backup power sources where applicable.
(f) Installation, identification and testing requirements.
(g) Characteristics and locations of surge protective devices, if included in the engineering

(1) Alarm, control, and signaling systems include motor control systems, emergency alarm circuits, activation of life safety system controls and remote signaling of emergency conditions (See Rule 61G15-32.008, F.A.C., for Fire Alarm Systems), surveillance and access control systems, temperature control, and systems related to energy conservation and facility management systems. The design documents shall be based on standards set forth the Florida Building Code, the Florida Fire Prevention Code, or as required by the local authority having jurisdiction. The Florida Building Code and The Florida Fire Prevention Code are incorporated by reference in Rule 61G15-18.011, F.A.C.

(2) The Electrical Engineering Documents for alarm, control, and signaling systems construction documents shall, at a minimum, indicate the following:
   (a) Description of the control system functions, or a functional diagram.
   (b) Equipment legend.
   (c) System riser diagram.
   (d) Cabling and conductor types and requirements.
   (e) Installation, identification and testing requirements.
   (f) Back-up power.
   (g) Location and characteristics of surge protective devices, if included in the engineering design.
   (h) Details and requirements indicated by Rule 61G15-32.008, F.A.C.
   (i) Complete requirements for operations and maintenance procedures, manuals, system documentation, and instruction of Owner’s operating personnel, as needed to operate the systems as intended over time.

61G15-33.007 Design of Lightning Protection Systems.

(1) Lightning Protection Systems are passive systems used to protect building and structures from damage caused by lightning and static discharges. Items to be considered in the design or analysis of these systems include risks to persons or property, environmental factors, geological factors, building or structure characteristics, and materials performance. The requirements of National Fire Protection Association (NFPA) 780 which is incorporated herein by reference. The material incorporated is copyrighted material that is available for public inspection and examination, but may not be copied, at the Department of State, Administrative Code and Register Section, Room 701, The Capitol, Tallahassee, Florida 32399-0250, and at the Board office, 2639 North Monroe Street, Suite B-112, Tallahassee, FL 32303.

(2) Electrical Engineering documents for lightning protection systems shall, at a minimum, indicate:
   (a) Lightning Risk Assessment.
   (b) Air terminals height and spacing.
   (c) Corrosion protection measures.
   (d) Arrangement of Main and Down conductors.
   (e) Grounding Terminal points and spacing.
   (f) Conductor type and size.
(g) Equipment Legend.
(h) Testing requirements of grounds.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History–New 5-19-93, Formerly 21H-33.007, Amended 11-13-08.


1) Grounding Systems are passive systems used to establish an electrical potential reference point in an electrical system, a common return path for current, or a direct connection to earth for the proper dissipation of energy in case of abnormal or transient conditions.

2) Electrical Engineering Documents for grounding systems shall indicate at a minimum, the following:
   (a) Type and location of grounding electrodes.
   (b) Bonding requirements.
   (c) Testing requirements.
   (d) Conductor material type, size and protection requirements.
   (e) Connections of separate grounding systems, bonded, and use requirements.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History–New 5-19-93, Formerly 21H-33.008, Amended 11-13-08.


Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033 FS. History–New 5-19-93, Formerly 21H-33.009, Repealed 2-11-08.

61G15-33.010 Certification of Electrical Systems of Public Interest.

1) The Engineer of Record shall when be required by applicable codes or ordinances, as required by the Authority Having Jurisdiction, to demonstrate verification of compliance.

2) Verifications of compliance from Electrical Engineering Documents warranted by codes and ordinances shall include, when applicable:
   (a) Energy efficiency and conservation tabulations, statements or calculations.
   (b) Lighting levels performance criteria included in the design that show illumination levels, intrusion, trespass, dark sky, safety or that show/preserve natural habitat tendencies.
   (c) Lighting, sound pressure, or other noise product specifications that indicate conformance with community, county, or state standards, codes or ordinances.

3) Any such verification shall constitute an Engineering Certification as that term is defined in Rule 61G15-18.011(4), F.A.C., and must comply with all Responsibility Rules, including 61G15-29.001, F.A.C.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.03 FS. History–New 11-13-08.

Upon motion by Mr. Hahn, seconded by Mr. Fleming to approve the changes shown in pages 7-11 of the meeting materials as amended by the committee was adopted. The motion passed.

D. Continuation of Review of Proposed Changes to Current Rules

E. Comments and Concerns
Mr. Fleming stated that he would like to present a final draft of the proposed changes to the board at the June 2017 FBPE Board meeting.

F. Set Next Meeting Date

G. Adjourn