Notice of Proposed Rule

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
Board of Professional Engineers

RULE NO: RULE TITLE
61G15-31.001: General Responsibility
61G15-31.002: Definitions
61G15-31.003: Design of Structures Utilizing Prefabricated Wood Trusses
61G15-31.004: Design of Cast-in-Place Post-Tensioned Concrete Structural Systems
61G15-31.005: Design of Structures Utilizing Precast and Prestressed Concrete Components
61G15-31.006: Design of Structural Systems Utilizing Open Web Steel Joists and Joist Girders
61G15-31.007: Design of Pre-Engineered Structures
61G15-31.008: Design of Foundations
61G15-31.009: Design of Structural Steel Systems

PURPOSE AND EFFECT: To update and clarify standards and add additional standards for the practice of structural engineering.

SUMMARY: This rule updates and clarifies standards and adds additional standards for the practice of structural engineering.

SUMMARY OF STATEMENT OF ESTIMATED REGULATORY COSTS: No Statement of Estimated Regulatory Cost was prepared. The Board determined that small businesses would not be affected by this rule.

Any person who wishes to provide information regarding a statement of estimated regulatory costs, or provide a proposal for a lower cost regulatory alternative must do so in writing within 21 days of this notice.

SPECIFIC AUTHORITY: 471.008, 471.033(2) FS.

LAW IMPLEMENTED: 471.033(1)(g), (j) FS.

IF REQUESTED WITHIN 21 DAYS OF THE DATE OF THIS NOTICE, A HEARING WILL BE SCHEDULED AND ANNOUNCED IN FAW.

THE PERSON TO BE CONTACTED REGARDING THE PROPOSED RULE IS: Carrie Flynn, Executive Director, Board of Professional Engineers, 2507 Callaway Road, Suite 200, Tallahassee, Florida 32301

THE FULL TEXT OF THE PROPOSED RULE IS:

61G15-31.001 General Responsibility.

The Engineer of Record ~~engineer of record for a structure~~ is responsible for all structural aspects of the design of the structure including the design of all of the structure's systems and components. As noted herein the engineer of record ~~for a structure~~ may delegate responsibility for the design of a system or component part of the structure to a ~~qualified~~ delegated engineer. In either case the structural engineering documents shall address, as a minimum, the items noted in the following subsections covering specific structural systems or components. The Engineer of Record's structural engineering documents shall identify delegated systems and components. Both the Engineer of Record ~~engineer of record~~ for the structure 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 structural responsibility rules contained herein. The Engineer of Record for the Structural 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 with his written instructions in accordance with Rule 61G15-30.005, F.A.C. When information obtained from a site visit is part of the engineer's deliberative process, the engineer is responsible for the accuracy of such information, to the extent that the engineer's designs are dependent on such information, whether the information is collected by the engineer or the engineer's authorized representative.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.001, Amended _____.

61G15-31.002 Definitions.

(1) Engineer of Record ~~for the Structure~~. The Florida licensed ~~registered~~ professional engineer who develops the overall structural design ~~criteria~~ and the structural design criteria ~~framing concept~~ for the structure, ~~performs the analysis~~ and is responsible for the preparation of the structural engineering ~~construction~~ documents.

(2) Structural Component. An individual structural member or element designed to be part of the structure or structural system. This definition of component should not be confused with any other published definitions.

(3) Structure. The entity to be built.

(4) Structural System. A portion of a structure comprising an assembly of structural components which carry and transmit loads.

(5) Structural Engineering Documents. The structural drawings, specifications and other documents setting forth the overall design and requirements for the construction, alteration, ~~modernization,~~ repair, removal, demolition, arrangement and/or use of the structure, prepared by and signed and sealed by the engineer of record for the structure. Structural engineering documents shall identify the project and specify design criteria both for the overall structure and for structural components and structural systems. The drawings shall identify the nature, magnitude and location of all design loads to be imposed on the structure. The structural engineering documents shall provide construction requirements to indicate the nature and character of the work and to describe, detail, label and define the structure's components, systems, materials, assemblies, and equipment.

(6) Structural Submittals. Submittals required by the structural engineering documents which do not require the seal of a professional engineer, such as:

(a) Drawings prepared solely to serve as a guide for fabrication and installation and requiring no engineering input such as reinforcing steel shop drawings, and structural steel, ~~and~~ steel joist and joist girder erection drawings.

(b) Catalog information on standard products not fabricated for a specific project.

(7) Structural Delegated Engineering Documents. Documents prepared by a delegated engineer to whom the engineer of record for the structure has delegated responsibility for the design of a structural component or system.

(8) Specialty Engineer. A licensed professional engineer, who is not the structural engineer of record, who provides engineering criteria or designs necessary for the structure to be completed. The specialty engineer may be a delegated engineer.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g), (j) FS. History–New 1-26-93, Formerly 21H-31.002, Amended 10-19-97, _____.

(Substantial rewording of Rule 61G15-31.003 follows. See Florida Administrative Code for present text.)

61G15-31.003 Design of Structures Utilizing Pre-Engineered ~~Prefabricated~~ Wood Trusses.

(1) Where the Engineer of Record has delegated the responsibility for truss design, the responsibilities of the Engineer of Record and the Delegated Engineer shall be as set forth in Chapter 2 of ANSI/TPI 1, edition adopted by the Florida Building Code, wherein the Engineer of Record is the Building Designer and the Delegated Engineer is the Truss Design Engineer as those terms are defined in said standard.

(2) The Engineer of Record and the Truss Design Engineer shall have additional responsibilities as follows:

(a) The Engineer of Record shall provide written design requirements to the Delegated Engineer and shall review the engineering documents of the Delegated Engineer for conformance with these design requirements in accordance with Rule 61G15-30.005, F.A.C. The Engineer of Record's Engineering Documents may serve as the written communication of design requirements.

(b) Each of the individual truss design drawings prepared by the delegated engineer shall be signed and sealed and shall include the following information.

1. A title block bearing the printed name, address, and license number of the Truss Design Engineer and the date of the drawing. This information may alternatively appear on the cover sheet.

2. The name and address of the Engineer of Record, if there is one. This information may alternatively appear on the cover sheet.

3. Identification of the project, by address or by lot number, block number, section or subdivision and city or county. This information may alternatively appear on the cover sheet.

4. Identification of the applicable building code that the truss design is intended to meet. This information may alternatively appear on the cover sheet.

5. Identification of any computer program used for engineering the trusses.

6. The engineering design criteria used in the design of the trusses.

7. Whereas the Truss Design Engineer is responsible for setting forth the connection requirements for truss to truss girder, truss to truss ply, and field assembly of trusses, each truss design drawing shall specify the location and ID of trusses that it supports and is supported by and the loads transferred at each location.

(c) A cover sheet may be signed and sealed in lieu of signing and sealing each individual truss design drawing,

provided that the cover sheet contains an index of the attached truss design drawings. The naming and numbering system utilized for the drawings shall be clear as to the number of drawings in the set and the date and sequence number of each of these drawings.

(3) The Engineer of Record may delegate the truss system as authorized by the general rule. In the absence of an applicable national consensus standard describing the division of responsibilities for truss system design this rule does not specify all the responsibilities that the design parties may have. The practice and engineering documents of the Engineer of Record and the delegated engineer shall conform to the requirements set forth above for truss design and shall adhere to sound engineering practice, particularly when the truss system includes indeterminate trusses.

(a) "Truss System" shall mean an assemblage of trusses and truss girders, together with all bracing, connections, and other structural elements and all spacing and locational criteria, that, in combination, function to support the dead, live and wind loads applicable to the roof of a structure with respect to a Truss System for the roof, and the floor of a structure with respect to a Truss System for the floor. A Truss System does not include walls, foundations, or any other structural support systems.

(b) The delegated engineering documents for the truss system shall include truss placement plans, framing plans, sections, and details that specify framing members, connections, support requirements, fasteners, and bracing required for the performance of the truss system.

Rulemaking ~~Specific~~ Authority 471.008, 471.033(2). Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.003, Amended 6-16-99, 3-22-01, 4-30-03, _____.

61G15-31.004 Design of Cast-In-Place Post-Tensioned Concrete Structural Systems.

(1) Structural engineering documents shall show the nature, type of post-tensioning system, location of the prestressing tendons and the magnitude ~~and location~~ of all prestressing forces and all design assumptions.

(2) If the engineer of record ~~for the structure~~ elects to delegate the responsibility for preparation of calculations and installation drawings to a delegated engineer for the post-tensioning system(s), the Engineer of Record ~~he~~ shall require the submission of installation drawings for review by the engineer of record ~~for the structure~~. Calculations shall also be submitted by the delegated engineer which show sufficient information to confirm that the number and size of tendons provided are adequate to provide the prestressing forces shown on the structural engineering documents. Installation drawings shall identify the structure and provide all ~~full~~ details of post-tensioning materials to be used including necessary accessories and instructions for construction ~~and shall identify the specific project~~. The installation drawings and calculations shall bear the impressed seal, date, and signature of the delegated engineer who prepared them and shall be reviewed by the engineer of record for the structure. A cover sheet listing the drawings and calculations may be used.

(3) It is the responsibility of the engineer of record for the structure to review the post-tensioning system installation drawings together with the shop drawings of all required reinforcing steel needed for a complete structural design ~~so that the drawings are coordinated with reinforcing steel shop drawings~~.

(4) The effect of post-tensioning on other parts of the structure ~~building~~ is the responsibility of the engineer of record ~~for the structure~~.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.004, Amended _____.

61G15-31.005 Design of Structures Utilizing Precast and Prestressed Concrete Components.

(1) Structural engineering documents shall indicate the configuration of precast and prestressed components and shall include details of supports, anchors and connections for those components.

(2) If the ~~The~~ engineer of record elects to ~~for the structure may~~ delegate responsibility for the design of precast or prestressed concrete components, or structural systems utilizing those components, to a delegated engineer, ~~. In that case~~ the engineer of record ~~for the structure~~ shall require structural delegated engineering documents for ~~his~~ review ~~as an indication that his intent has been understood and that the specified criteria have been used~~. Structural delegated engineering documents shall bear the impressed seal, date, and signature of the delegated engineer and shall be reviewed by the Engineer of Record as an indication that the intent has been understood and that the specified criteria have been used.

(3) Structural delegated engineering documents shall include component details, calculations, and fabrications and erection drawings. All such submittals shall identify the specific project. The effect of precast and prestressed concrete members on other parts of the building is the responsibility of the engineer of record ~~for the structure~~.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.005, Amended _____.

61G15-31.006 Design of Structural Systems Utilizing Open Web Steel Joists and Joist Girders.

(1) The Engineer of Record shall indicate on the structural engineering documents ~~Structural Engineering Documents~~ the steel joist and joist girder designations from the edition of the ~~1997~~ Steel Joist Institute's Specifications and load tables adopted by the Florida Building Code, and shall indicate the appropriate standards for joist and joist girder design, layout, end supports, anchorage, bridging requirements, etc., including connections to walls. These documents shall indicate special requirements for concentrated loads, non-uniform loads, openings, extended ends, and resistance to uplift loads.

(2) The steel joist and joist girder manufacturer shall design the steel joist and joist girder members in accordance with the edition of the ~~1997~~ Steel Joist Institute Specifications and load tables adopted by the Florida Building Code, to support the loads per the engineer of record's ~~Engineer of Record's~~ specified joist and joist girder designations and/or special loading diagrams, as set forth in the structural engineering documents. ~~Structural Engineering Documents.~~ The Engineer of Record may require the submission of the steel joist and joist girder design calculations, prepared by a delegated engineer, as an indication of compliance. When required to submit the steel joist and joist girder calculations, the steel joist and joist girder manufacturer shall submit a cover letter along with the steel joist and joist girder design calculations. The cover letter shall bear the seal, date and signature of a Florida licensed ~~registered~~ professional engineer responsible for design of the steel joist and joist girders and shall contain the following information:

(a) The name, address and license number of the delegated engineer.

(b) Identification of the project by name and address.

(c) Identification of the applicable building code and the design criteria used.

(d) An index of the attached calculations and a list of the drawings to which they apply.

(3) The manufacturer may prepare layout drawings for the accuracy of interpretation and dimension of the record documents. As stated in subsection 61G15-31.002(6), F.A.C., the layout drawings do not need to be signed and sealed.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g), (j) FS. History–New 1-26-93, Formerly 21H-31.006, Amended 10-19-97, _____.

61G15-31.007 Design of Metal Building Systems ~~Pre-Engineered Structure~~.

(1) A metal building system is defined as an integrated set of components and assemblies that are specifically designed to form a complete structural system. This typically includes primary framing comprised of constant depth or web-tapered structural steel frames, secondary members that are cold-formed steel or steel joists, a metal panel roof system and exterior wall cladding. These components and assemblies are manufactured in a manner that permits plant and/or field inspection prior to assembly or erection.

(2)~~(1)~~ Structural engineering documents prepared by the engineer of record ~~for pre-engineered structures~~ shall reflect the design criteria for the metal building system ~~indicate the necessary measures for adapting the structures to the specific site~~. They shall indicate all openings, concentrated loads and other special requirements. Foundation conditions assumed in the design shall be indicated as well as the location and magnitude of building reactions on that foundation under all design conditions.

(3)~~(2)~~ The engineer of record ~~for the structure~~ may delegate responsibility of the design of the metal building system ~~pre-engineered structures~~ to a delegated engineer requiring submittal of structural delegated engineering documents.

(4)~~(3)~~ Structural delegated engineering documents shall identify the project and list loading and other design criteria. Structural delegated engineering documents shall include ~~fabrication and~~ erection drawings which indicate in detail the construction of the ~~standard~~ structure used for ~~or as modified to comply with the requirements of~~ the specific ~~particular~~ project. The~~y~~ structural delegated engineering documents shall indicate all connection details, openings and other special details. They shall show the magnitude and location of building reactions on the foundation under all design conditions. Calculations shall be provided, if requested by the engineer of record, to prove ~~supporting~~ the design is in compliance with the written engineering requirements for the specific project ~~shall be submitted not only for the standard structure but for modifications and for related components requiring structural design~~. Structural delegated engineering documents shall bear the signature, date, and impressed seal of the Florida licensed delegated engineer.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.007, Amended_____.

61G15-31.008 Design of Foundations.

(1) The structural engineering documents shall designate the foundation capacity used as the basis of design and shall include data indicating the nature of the foundation and sub-grade material ~~anticipated~~.

(2) Site and sub-grade preparation requirements, necessary to provide the foundation capacity, shall be specified in the structural engineering documents.

(3) The foundation capacity and site preparation requirements shall be determined on the basis of scientific analysis utilizing investigations, tests or studies conducted for or provided by the engineer of record for the structure or by a licensed professional engineer, in accordance with code procedures ~~delegated engineer~~.

(4) The engineer of record is responsible for the design of foundation components and shall take into account anticipated loads and load paths along with the evaluation of any existing structural conditions.

(5) The engineer of record may delegate the design of certain components of the foundation, such as piles and retaining walls, to a delegated engineer. Structural delegated engineering documents for these components, signed, sealed and dated by the delegated licensed professional engineer, shall be submitted to the engineer of record.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.008, Amended _____.

61G15-31.009 Design of Structural Steel Systems.

(1) The engineer of record ~~for the structure~~ is responsible for all aspects of the structure's design including the design of components and connections.

(2) The engineer of record ~~for the structure~~ may detail all structural connections on the structural engineering documents and require fabrication and erection in accordance with these details.

(3) Alternately, the engineer of record ~~for the structure~~ may specify criteria for the design of the structural connections and identify the nature, magnitude, and location of all design loads to be supported by the connections in the ~~his~~ structural engineering documents. The engineer of record ~~for the structure~~ may then delegate design responsibility for the selection or modification of the structural connections to a delegated engineer and require delegated engineering documents, which the engineer of record may require to be signed, sealed and dated by the delegated licensed professional engineer ~~submittal~~.

(4) The structural engineering documents may assign to the fabricator responsibility for implementing the design as specified and for maintaining fabrication and erection tolerances and for ensuring the fit and erectability of the structure.

(5) The fabricator shall forward fabrication and erection drawings for review by the engineer of record ~~for the structure~~.

Rulemaking ~~Specific~~ Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History–New 1-26-93, Formerly 21H-31.009, Amended _____.

NAME OF PERSON ORIGINATING PROPOSED RULE: Board of Professional Engineers
NAME OF AGENCY HEAD WHO APPROVED THE PROPOSED RULE: Board of Professional Engineers
DATE PROPOSED RULE APPROVED BY AGENCY HEAD: October 14, 2009
DATE NOTICE OF PROPOSED RULE DEVELOPMENT PUBLISHED IN FAW: August 7, 2009