

CHAPTER 61G15-31
RESPONSIBILITY RULES OF PROFESSIONAL ENGINEERS CONCERNING THE DESIGN OF STRUCTURES

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61G15-31.001 General Responsibility.

The Engineer of Record 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 may delegate responsibility for the design of a system or component part of the structure to a 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 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 collected from the engineer or the engineer's authorized representative from a site visit is part of the engineer's deliverative process, the engineer is responsible for the accuracy of such information.

Rulemaking Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.001, Amended 9-28-10.

61G15-31.002 Definitions.

(1) Engineer of Record. The Florida licensed professional engineer who develops the overall structural design and the structural design criteria for the structure, and is responsible for the preparation of the structural engineering 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, 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, 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 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, Amended 9-28-10.

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

(1) When a Structural Engineer of Record and a Delegated Engineer exist as may be determined by applicable Florida law, the apportionment of responsibilities between the Structural Engineer of Record and a Delegated Engineer shall be as set forth in Chapter 2 of ANSI/TPI 1-1995, wherein the Structural Engineer of Record is the Building Designer and the Delegated Engineer is the Truss Designer as those terms are defined in said standard.

(2) The Structural Engineer of Record shall provide design requirements in writing to the Delegated Engineer and shall review the design documents of the delegated engineer for conformance to his written instructions in accordance with Rule 61G15-30.005, F.A.C.

(3) For the purposes of this rule, the following definitions shall apply:

(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) "Truss System Engineer" shall mean an engineer who designs a Truss System.

(c) "Truss Design Engineer" shall mean an engineer who designs individual trusses, but does not design a Truss System.

(4) An engineer is a Truss System Engineer if he designs a Truss System. Each of the drawings in the Truss System design package for the Truss System shall include a title block bearing the printed name, address, and license number of the Truss System Engineer and the date of the drawing. The design documentation prepared by the Truss System Engineer shall also include a truss placement plan for the Truss System, showing the location and designation of each truss. Said design documentation for the

Truss System shall be signed and sealed by the Truss System Engineer. The cover or index sheet of the Truss System design package may be signed and sealed in lieu of signing and sealing each individual sheet, provided that the cover or index sheet contains the following information:

(a) The name, address and license number of the Structural Engineer of Record, if there is one, and the name, address and license number of the Truss System Engineer.

(b) Identification of the project, by address or by lot number, block number, section or subdivision and city or county.

(c) Identification of the applicable building code and chapter(s) that the Truss System design is intended to meet, the engineering design criteria relied upon in designing the Truss System and the truss design loading.

(d) Identification of any computer program used for engineering the Truss System.

(e) An index of the attached Truss System design drawings. The naming and numbering system utilized for the drawings shall be clear as to how many drawings there are in the set and the date and sequence number of each of these drawings shall be included.

(5) An engineer is a Truss Design Engineer if he designs individual trusses, but does not design the Truss System. Each of the drawings in the truss design package for individual trusses shall include a title block bearing the printed name, address, and license number of the Truss Design Engineer and the date of the drawing. The Truss Design documents prepared by the Truss Design Engineer shall be signed and sealed by the Truss Design Engineer. The cover or index sheet of the truss design package may be signed and sealed in lieu of signing and sealing each individual sheet, provided that the cover or index sheet contains the following information:

(a) The name, address and license number of the Structural Engineer of Record, if there is one, and the name, address, and license number of the Truss Design Engineer.

(b) Identification of the project, by address or by lot number, block number, section or subdivision and city or county.

(c) Identification of the applicable building code and chapter(s) that the truss design is intended to meet, the engineering design criteria relied upon in designing the trusses and the truss design loading.

(d) Identification of any computer program used for engineering the trusses.

(e) An index of the attached truss design drawings. The naming and numbering system utilized for the drawings shall be clear as to how many drawings there are in the set and the date and sequence number of each of these drawings.

Specific Authority 471.008, 471.033(2) FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.003, Amended 6-16-99, 3-21-01, 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 of all prestressing forces and all design assumptions.

(2) If the engineer of record 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 shall require the submission of installation drawings for review by the engineer of record. 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 details of post-tensioning materials to be used including necessary accessories and instructions for construction. 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.

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

Rulemaking Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.004, Amended 9-28-10.

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 engineer of record elects to delegate responsibility for the design of precast or prestressed concrete components, or structural systems utilizing those components, to a delegated engineer, the engineer of record shall require structural delegated engineering documents for review. 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.

Rulemaking Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.005, Amended 9-28-10.

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 the steel joist and joist girder designations from the 1997 Steel Joist Institute's Specifications and load tables 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 1997 Steel Joist Institute Specifications and load tables to support the loads per the Engineer of Record's specified joist and joist girder designations and/or special loading diagrams, as set forth in Structural Engineering Documents. The Engineer of Record may require the submission of the steel joist and joist girder design calculations 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 and signature of a Florida registered professional engineer responsible for design of the steel joist and joist girders.

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.

(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) Structural engineering documents prepared by the engineer of record shall reflect the design criteria for the metal building system as required in subsection 61G15-31.002(5), F.A.C. 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) The engineer of record may delegate responsibility of the design of the metal building system to a delegated engineer requiring submittal of structural delegated engineering documents.

(4) Structural delegated engineering documents shall identify the project and list loading and other design criteria. Structural delegated engineering documents shall include erection drawings which indicate in detail the construction of the structure used for the specific project. The 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 the design is in compliance with the written engineering requirements for the specific project. Structural delegated engineering documents shall bear the signature, date, and impressed seal of the Florida licensed delegated engineer.

Rulemaking Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.007, Amended 9-28-10.

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.

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

(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.

(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 Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.008, Amended 9-28-10.

61G15-31.009 Design of Structural Steel Systems.

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

(2) The engineer of record 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 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 structural engineering documents. The engineer of record 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.

(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.

Rulemaking Authority 471.033(2), 471.008 FS. Law Implemented 471.033(1)(g) FS. History—New 1-26-93, Formerly 21H-31.009, Amended 9-28-10.