

## Position Statement on Sealed Truss Placement Diagrams for Residential Projects in the State of Minnesota

Released February 19, 2008

### Background:

The Truss Placement Diagram (TPD) is not to be viewed as an engineering document except as stated below; rather it is provided to assist the installer in properly locating the trusses within the structure. All the necessary truss engineering and analysis is found on the Truss Design Drawings (TDD).

If a TPD is provided, it is recommended that the Building Designer review and approve the TPD to ensure that the intended load paths have not been altered.

If a Truss Design Engineer were to seal a TPD, it has been suggested that they could inappropriately be held responsible for ensuring the proper flow of loads through the truss to the bearing and support structure below the truss and into the foundation.

A Truss Design Engineer would only undertake Building Designer responsibilities under a special set of circumstances, including that he/she is professionally capable of taking on such responsibility and that he/she are properly compensated for the work.

### Issue:

Certain jurisdictions in Minnesota are requesting engineering seals on Truss Placement Diagrams (TPD) (also known as a truss placement plan, truss layout, framing plan or framing layout). The following information should be used to provide insight into why component manufacturers should seriously consider all the ramifications of providing seals on a TPD for residential projects.

This information is based on the *Minnesota Statutes (326.02-326.15)*<sup>1</sup>, *Minnesota Rules (1800 & 1805)*<sup>1</sup>, and the *2007 Minnesota State Residential Code (MSRC)*<sup>2</sup>.

### Recommended Action:

The Minnesota professional engineering law and the *2007 Minnesota State Residential Code* provide the basis upon which to evaluate the need to provide an engineer's seal on a Truss Placement Diagram (TPD). Based on the building code regulations and professional engineering law, unless prepared under the direct supervision of a Registered Design Professional, TPDs do not require a professional engineer's seal.

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<sup>1</sup> [www.aelslagid.state.mn.us](http://www.aelslagid.state.mn.us)

<sup>2</sup> The 2007 Minnesota Residential Code is based on the 2006 International Residential Code: [www.doli.state.mn.us/pdf/bc\\_2007msbc.pdf](http://www.doli.state.mn.us/pdf/bc_2007msbc.pdf)



Prepared with assistance from the Minnesota Truss Manufacturers Association – a local SBCA Chapter.

View all SBCA *Technical Notes* at [www.sbcindustry.com/technotes.php](http://www.sbcindustry.com/technotes.php)

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### Key Definitions:<sup>3</sup>

#### **BUILDING DESIGNER:**

Owner of the Building or the person that contracts with the Owner for the design of the Framing Structural System and/or who is responsible for the preparation of the Construction Documents. When mandated by the Legal Requirements, the Building Designer shall be a Registered Design Professional.

#### **CONSTRUCTION DOCUMENTS:**

Written, graphic and pictorial documents prepared or assembled for describing the design (including the Framing Structural System), location and physical characteristics of the elements of a Building necessary to obtain a Building Permit and construct a Building.

#### **REGISTERED DESIGN PROFESSIONAL (RDP):**

Architect or engineer, who is licensed to practice their respective design profession as defined by the Legal Requirements of the Jurisdiction in which the Building is to be constructed.

#### **TRUSS DESIGN DRAWING (TDD):**

Written, graphic and pictorial depiction of an individual truss that includes the design information required per *2007 MSRC* Sections R502.11.4 and R802.10.1.

#### **TRUSS DESIGNER:**

The individual or organization responsible for the design of trusses. When mandated by the Legal Requirements, the Truss Designer shall be a Truss Design Engineer.

#### **TRUSS DESIGN ENGINEER:**

Person who is licensed to practice engineering as defined by the Legal Requirements of the Jurisdiction in which the Building is to be constructed and who supervises the preparation of the Truss Design Drawings.

#### **TRUSS PLACEMENT DIAGRAM (TPD):**

Illustration identifying the assumed location of each truss.

### Analysis:

#### ***The State of Minnesota Does Not Require Engineering on Residential Structures***

Requiring a TPD to be prepared and sealed by the Truss Design Engineer is contrary to Minnesota law. This requirement would hold the building component manufacturing industry to a far greater standard than other similar industries.

According to *Minnesota Statutes* (see **Appendix C**), residential structures (dwellings for single families and two family dwellings) are not listed as buildings requiring services of a licensed engineer or architect. Given this statute, there is only a requirement in Minnesota for the registered professional engineer or architect to seal Construction Documents or structural building component related engineering designs for buildings others than those listed below in *Minnesota Statutes* Section 326.03 Subdivision 2a – d:

#### **Minnesota Statutes 2007. Chapter 326. 326.03 LICENSE OR CERTIFICATE REQUIRED.**

**Subdivision 2 Exceptions.** Nothing contained in sections 326.02 to 326.15 shall prevent persons from advertising and performing services such as consultation, investigation, or evaluation in connection with, or from making plans and specifications for, or from supervising, the erection, enlargement, or alteration of any of the following buildings:

- (a) dwellings for single families, and outbuildings in connection therewith, such as barns and private garages;
- (b) two family dwellings;
- (c) any farm building or accessory thereto; or
- (d) temporary buildings or sheds used exclusively for construction purposes, not exceeding two stories in height, and not used for living quarters.

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<sup>3</sup> Definitions adopted from ANSI/TPI 1

## ***Residential Construction Documents***

The majority of residential structures are furthermore built using the prescriptive code within the *2007 MSRC*. Trusses are simply replacements for the prescriptively applied joists and rafters, which are also highly engineered structural elements.

When the Building Designer involved with a residential project is a Registered Design Professional (RDP), it is up to them to evaluate every structural component, (e.g., rafters, joists, I-joists, and trusses) to ensure their structural adequacy and that they are applied so that the structure's protection of life/safety is assured. The placement of trusses is just one of the elements the RDP must consider. Joists, rafters, I-joists, LVL, PSL, and glulam are other equally important structural elements that must be evaluated and integrated properly. The RDP will seal all his/her engineering work. Commonly the RDP delegates the design of the trusses to a Truss Design Engineer. The RDP will then review and approve all engineering performed by the Truss Design Engineer.

According to the *2007 MSRC* Section 1300.0130 (see **Appendix A**):

### **2007 MINNESOTA STATE RESIDENTIAL CODE Section 1300.0130 Construction Documents.**

**Subpart 1. Submittal documents.** ...The building official may require plans or other data be prepared according to the rules of the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design, chapter 1800, and Minnesota Statutes, sections 326.02 to 326.15, and other state laws relating to plan and specification preparation by occupational licenses. If special conditions exist, the building official may require additional construction documents to be prepared by a licensed design professional.

The construction documents should in turn clearly define the scope of the work proposed by the Building Designer:

### **2007 MINNESOTA STATE RESIDENTIAL CODE Section 1300.0130 Construction Documents.**

**Subpart 2. Information on construction documents.** ...Construction documents shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that it will conform to the code and relevant laws, ordinances, rules, and regulations, as determined by the building official. ...

In preparing the construction documents, the Building Designer needs to provide the Truss Design Engineer with the information necessary to properly design the trusses for the building. According to *ANSI/TPI 1-2002* Chapter 2 (see **Appendix B**), which is adopted by reference in *2007 MSRC* [see **Appendix A** (1300.0020), (1300.0030 Subpart 2), (R502.11.1), (R802.10.2), and (Part IX, Referenced Standards, Chapter 43)], the following information should be provided:

#### **ANSI/TPI 1-2002 Chapter 2**

**2.5.2** The Building Designer...shall provide the following:

- 2.5.2.1** All Structural Element and Truss orientations and locations;
- 2.5.2.2** Information to fully determine all Truss profiles;
- 2.5.2.3** All Structural Element and Truss bearing conditions;
- 2.5.2.4** The location, direction, and magnitude of all dead and live loads applicable to each Structural Element and Truss...
- 2.5.2.5** All Structural Element and Truss anchorage designs required to resist uplift, gravity, and lateral loads;
- 2.5.2.6** Allowable vertical and horizontal deflection criteria and any specific criteria...
- 2.5.2.7** Proper transfer of design loads affecting the Structural Elements and Trusses;
- 2.5.2.8** Adequate connections between Trusses and between Structural Elements...but not Truss to Truss girder connections...
- 2.5.2.9** Permanent bracing design for the Building...and permanent bracing for all Structural Elements and Trusses...

- 2.5.3 The Building Designer shall be responsible for the adequacy of the design of the Building Structural System [and]...shall evaluate the effect of the Trusses and the Structural Elements supplied, on the Building Structural System.

### ***Truss Design and Preparation of Truss Design Drawings***

Assuming the requisite information is provided within the construction documents issued by the RDP or Building Designer, the Truss Design Engineer's sole responsibility is to properly design the individual trusses according to this information. Once designed, a truss is then depicted on a TDD. The Truss Design Engineer is therefore specifically responsible for the single truss design depicted on each TDD.

### ***Who Typically Prepares Truss Placement Diagrams?***

Assuming the requisite information is provided in the Construction Documents, TPD are prepared by component manufacturer personnel who are not typically Truss Design Engineers and many times are the Truss Manufacturer's salespeople or are individuals who work as truss technicians or truss take-off specialists. All these people are highly trained and skilled in the work they do but are generally non-engineers. Because these TPD are typically prepared outside the Truss Designer Engineer's scope of work, they may not be reviewed or even seen by the Truss Design Engineer and are therefore not prepared under the Truss Design Engineer's direct supervision.

### ***To Require Truss Placement Diagrams to be Sealed Would Violate Minnesota Law.***

Because a TPD is generally neither created by nor created under the immediate personal supervision of a licensed design professional, they cannot be sealed. Requesting a Truss Design Engineer to seal a non-registered person's work is illegal in Minnesota per *Minnesota Statutes* (see **Appendix C**) and *Minnesota Rules* (see **Appendix D**), which state in pertinent part:

#### **Minnesota Statutes 2007. Chapter 326. 326.11 LICENSE AND CERTIFICATE REGULATION.**

**Subdivision 1. Revocation or suspension.** The board shall have the power to revoke or suspend the license or certificate of any...engineer...who is found guilty by the board...of attaching the licensee's or certificate holder's seal or signature to any plan, specification, report...or other...engineering...document not prepared by the person signing or sealing it or under that person's direct supervision...

#### **Minnesota Statutes 2007. Chapter 326. 326.111 UNAUTHORIZED PRACTICE; DISCIPLINARY ACTION.**

**Subdivision 4. Actions against applicants and licensees.** (a) The board may, by order, deny, refuse to renew, suspend, temporarily suspend, or revoke the application, license, or certification of a person; censure or reprimand that person; condition or limit the person's practice; refuse to permit a person to sit for examination; or refuse to release the person's examination grades if the board finds that the order is in the public interest and the applicant, licensee, or certificate holder: ...**(9)** has attached the person's seal or signature to a plan, specification, report...or other... engineering...design document not prepared by the person sealing or signing it or under that person's direct supervision; or...

#### **Minnesota Statutes 2007. Chapter 326. 326.12 LICENSE OR CERTIFICATE AS EVIDENCE; SEAL.**

**Subdivision 3. Certified signature.** Each plan, drawing, specification, ..., report, or other document which ...is prepared by a ...licensed engineer...must bear the signature of the licensed or certified person preparing it, or the signature of the licensed or certified person under whose direct supervision it was prepared. ...

#### **Minnesota Rules, Chapter 1805. 1805.0200 PERSONAL CONDUCT.**

**Subpart 4. General prohibitions.** A licensee shall not: ...E. permit the licensee's name or seal to be affixed to plans, specifications, or other documents which were not prepared by or under the direct supervision of the licensee.

### ***Why are Truss Placement Diagrams Prepared?***

TPDs are intended to assist customers, erectors and code enforcement officials in positioning or locating the trusses and related structural components supplied by the component manufacturer.

Their function is to serve as detailed installation instructions. They indicate the component manufacturer's assumed location for each truss or related component that has been designed and manufactured.

From this perspective, a truss or related structural building component is no different than a window that is manufactured and in turn installed within a building. A window may be a highly engineered component of a house with specific installation specifications and instructions. However, there is no requirement to provide an engineer's seal on the installation instructions for windows.

### ***The International Code Committee (ICC) Has Recently Codified That Truss Placement Diagrams Should Not Be Sealed***

The 2003 edition of the *International Building Code (IBC)* did not clearly define a TPD. As such, some incorrectly inferred that they were part of the "Truss Design Drawings" which the *2007 Minnesota State Building Code (MSBC)* defines as follows:

**2003 IBC 2303.4.1 Truss design drawings.** Truss construction documents shall be prepared by a registered design professional and shall be provided to the building official and approved prior to installation.

To clear up any confusion on this issue, Section 2303 of the *2006 IBC*, which again is the nationally recognized model building code the *2007 MSBC* is based upon, has been revised to include the following regarding "Truss Placement Diagram":

**2007 MSBC Section 2303.4.1.3 Truss placement diagram.** The truss manufacturer shall provide a truss placement diagram that identifies the proposed location for each individually designated truss and references the corresponding truss design drawing. The truss placement diagram shall be provided as part of the truss submittal package, and with the shipment of trusses delivered to the job site. Truss placement diagrams shall not be required to bear the seal or signature of the truss designer.

**Exception:** When the truss placement diagram is prepared under the direct supervision of a registered design professional, it is required to be signed and sealed.

Identical language has been proposed for the *2009 International Residential Code*.

## Appendix A

The language in RED signifies sections of the code or law that have been used in the foregoing document to make it easier for the reader to see the language in context.

### THE 2007 MINNESOTA STATE RESIDENTIAL CODE

#### MINNESOTA RULES, CHAPTER 1300 ADMINISTRATION OF THE STATE BUILDING CODE

1300.0020 TITLE. The chapters listed in part 1 300.0050, including the standards they adopt by reference, are the Minnesota State Building Code and may be cited as or referred to as the "code."

#### 1300.0030 PURPOSE AND APPLICATION.

##### Subpart 1. Purpose.

The purpose of this code is to establish minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

The purpose of the code is not to create, establish, or designate a particular class or group of persons who will or should be of the code.

##### Subp. 2. Application.

A. The code applies statewide except as provided in Minnesota Statutes, sections 16B.72 and 16B.73, and supersedes the building code of any municipality. The code does not apply to agricultural buildings except with respect to state inspections required or rulemaking authorized by Minnesota Statutes, sections 103F.141, subdivision 8, and 326.2441.

B. The codes and standards referenced in a rule chapter are considered part of the requirements of the code to the prescribed extent of each reference. If differences occur between provisions of the code and referenced codes and standards, the provisions of the code apply.

C. In the event that a new edition of the code is adopted after a permit has been issued, the edition of the code current at the time of permit application shall remain in effect throughout the work authorized by the permit.

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#### 1300.0130 CONSTRUCTION DOCUMENTS.

**Subpart 1. Submittal documents.** Construction documents, special inspection and structural observation programs, and other data shall be submitted in one or more sets with each application for a permit.

Exception: The building official may waive the submission of construction documents and other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with the code.

The building official may require plans or other data be prepared according to the rules of the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design, chapter 1800, and Minnesota Statutes, sections 326.02 to 326.15, and other state laws relating to plan and specification preparation by occupational licenses. If special conditions exist, the building official may require additional construction documents to be prepared by a licensed design professional.

**Subp. 2. Information on construction documents.** Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the building official. Construction documents shall be of sufficient clarity to indicate the location, nature, and extent of the work

proposed and show in detail that it will conform to the code and relevant laws, ordinances, rules, and regulations, as determined by the building official.

**Subp. 3. Manufacturer's installation instructions.** When required by the building official, manufacturer's installation instructions for construction equipment and components regulated by the code, shall be available on the job site at the time of inspection.

**Subp. 4. Site plan.** The construction documents submitted with the application for permit shall be accompanied by a site plan drawn to scale, showing the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades, and the proposed finished grades, and it shall be drawn according to an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official may waive or modify the requirement for a site plan if the application for permit is for alteration or repair or when otherwise warranted.

**Subp. 5. Examination of documents.** The building official shall examine or cause to be examined the accompanying construction documents to ascertain whether the construction indicated and described complies with the requirements of the code and other pertinent laws and ordinances.

**Subp. 6. Approval of construction documents.** If the building official issues a permit, the construction documents shall be approved in writing or by a stamp, stating "Reviewed for Code Compliance," dated, and signed by the building official or an authorized representative. One set of the construction documents that were reviewed shall be retained by the building official. The other set shall be returned to the applicant, kept at the site of the work, and open to inspection by the building official or an authorized representative.

**Subp. 7. Previous approvals.** The code in effect at the time of application shall be applicable.

**Subp. 8. Phased approval.** The building official may issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of the code. The holder of the permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

**Subp. 9. Design professional in responsible charge.**

**A. The building official may require the owner to engage and designate on the building permit application a licensed design professional who shall act as the licensed design professional in responsible charge.** If the circumstances require, the owner shall designate a substitute licensed design professional in responsible charge who shall perform the duties required of the original licensed design professional in responsible charge. The building official shall be notified in writing by the owner if the licensed design professional in responsible charge is changed or is unable to continue to perform the duties.

The licensed design professional in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

When structural observation is required by the code, the inspection program shall name the individual or firms who are to perform structural observation and describe the stages of construction at which structural observation is to occur.

**B.** For the purposes of this part, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the building official within a specified period.

Deferral of any submittal items shall have the prior approval of the building official. The licensed design professional in responsible charge shall list the deferred submittals on the construction documents for review by the building official.

Submittal documents for deferred submittal items shall be submitted to the licensed design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and that they have been found to be in general conformance with the design of the building. The deferred submittal items shall not be installed until their design and submittal documents have been approved by the building official.

C. Work regulated by the code shall be installed according to the reviewed construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents.

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## MINNESOTA RULES, CHAPTER 1309 ADOPTION OF THE 2006 INTERNATIONAL RESIDENTIAL CODE

### 1309.0010 ADOPTION OF INTERNATIONAL RESIDENTIAL CODE (IRC) BY REFERENCE.

**Subpart 1. Generally.** The 2006 edition of the International Residential Code (IRC) as promulgated by the International Code Council (ICC), Falls Church, Virginia, is incorporated by reference and made part of the Minnesota State Building Code except as qualified by the applicable provisions in Minnesota Rules, chapter 1300, and as amended in this chapter. The IRC is not subject to frequent change and a copy of the IRC, with amendments for use in Minnesota, is available in the office of the commissioner of labor and industry. Portions of this chapter reproduce text and tables from the IRC. The IRC is copyright 2006 by the ICC. All rights reserved.

**Subpart 2. Mandatory chapters.** The 2006 IRC Chapters 2 through 10 and 43 must be administered by any municipality that has adopted the code, except as qualified by the applicable provisions in Minnesota Rules, chapter 1300, and as amended by this chapter.

**Subpart 3. Replacement chapters.** The following 2006 IRC chapters are being deleted and replaced with the provisions listed below:

A. Chapter 1 of the 2006 IRC and any references to code administration in this code are deleted and replaced with Minnesota Rules, chapter 1300, Minnesota Administration Code.

B. Chapter 11 of the 2006 IRC and any references to energy in this code are deleted and replaced with Minnesota Statutes, section 16B.617.

C. Chapters 12 through 24 of the 2006 IRC and any references to mechanical matters in this code are deleted and replaced with Minnesota Rules, chapter 1346, Minnesota Mechanical Code.

D. Chapters 25 through 32 of the 2006 IRC and any references to plumbing in this code are deleted and replaced with Minnesota Rules, chapter 4715, Minnesota Plumbing Code.

E. Chapters 33 through 42 of the 2006 IRC and references to electrical matters in this code, other than Section R313 Smoke Alarms, are deleted and replaced with Minnesota Rules, chapter 1315, Minnesota Electrical Code.

**Subpart 4. Seismic or earthquake provisions.** Any seismic or earthquake provisions and any references to them are deleted and are not included in this code.

**Subpart 5.** Flood hazard or floodproofing provisions. Any flood hazard or floodproofing provisions in the IRC, and any reference to those provisions, are deleted in their entirety. Requirements for floodproofing are located in chapter 1335, floodproofing regulations.

**Subpart 6.** Elevator and platform lift provisions. Any elevator and platform lift provisions in the IRC and any reference to those provisions are deleted in their entirety. Requirements for elevators or platform lifts are located in chapter 1307, elevators and related devices.

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#### 1309.0020 REFERENCES TO OTHER ICC CODES.

**Subpart 1. Generally.** References to other codes and standards promulgated by the ICC in the 2006 IRC are modified in subparts 2 to 11.

**Subp. 2. Building code.** References to the International Building Code in this code mean the Minnesota Building Code, adopted pursuant to Minnesota Rules, chapter 1305, and Minnesota Statutes, section 16B.61, subdivision 1.

**Subp. 3. Residential code.** References to the IRC in this code mean the Minnesota Residential Code, adopted under Minnesota Rules, chapter 1309, and Minnesota Statutes, section 16B.61, subdivision 1.

**Subp. 4. Electrical code.** References to the ICC Electrical Code in this code mean the Minnesota Electrical Code, Minnesota Rules, chapter 1315, adopted under Minnesota Statutes, section 326.243.

**Subp. 5. Fuel gas code.** References to the International Fuel Gas Code in this code mean the Minnesota Mechanical Code, Minnesota Rules, chapter 1346, adopted under Minnesota Statutes, section 16B.61, subdivision 1.

**Subp. 6. Mechanical code.** References to the International Mechanical Code in this code mean the Minnesota Mechanical Code, Minnesota Rules, chapter 1346, adopted under Minnesota Statutes, section 16B.61, subdivision 1.

**Subp. 7. Plumbing code.** References to the International Plumbing code in this code mean the Minnesota Plumbing Code, Minnesota Rules, chapter 4715, adopted under Minnesota Statutes, section 16B.61, subdivisions 1 and 2.

**Subp. 8. Private sewage disposal code.** References to the International Private Sewage Disposal Code in this code mean the Minnesota Pollution Control Agency's minimum standards and criteria for individual sewage treatment systems in Minnesota Rules, chapter 7080, adopted under Minnesota Statutes, chapters 103F, 103G, 115, and 116.

**Subp. 9. Energy conservation code.** References to the International Energy Conservation Code in this code mean the Minnesota Energy Code, adopted under Minnesota Statutes, section 16B.617.

**Subp. 10. Property maintenance code.** References to the International Property Maintenance Code in this code do not apply.

**Subp. 11. Accessibility code.** References to accessibility in this code mean the Minnesota Accessibility Code, Minnesota Rules, chapter 1341.

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#### 1309.0100 CHAPTER 1, ADMINISTRATION.

**Subpart 1. IRC chapter 1.** IRC chapter 1 is deleted and replaced with the following:

This code shall be administered according to Minnesota Rules, chapter 1300.

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#### Chapter 5 FLOORS

R502.11 Wood trusses.

R502.11.1 Design. Wood trusses shall be designed in accordance with approved engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section R106.1.

R502.11.4 Truss design drawings. Truss design drawings, prepared in compliance with Section R502.11.1, shall be provided to the building official and approved prior to installation. Truss design drawing shall be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the information specified below:

1. Slope or depth, span, and spacing;
  2. Location of all joints;
  3. Required bearing widths;
  4. Design loads as applicable;
    - 4.1 Top chord live load (including snow loads);
    - 4.2 Top chord dead load;
    - 4.3 Bottom chord live load;
    - 4.4 Bottom chord dead load;
    - 4.5 Concentrated loads and their points of application;
    - 4.6 Controlling wind and earthquake loads.
  5. Adjustments to lumber and joint connector design values for conditions of use;
  6. Each reaction force and direction;
  7. Joint connector type and description (e.g., size, thickness or gauge); and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface;
  8. Lumber size, species and grade for each member;
  9. Connection requirements for:
    - 9.1 Truss-to-truss girder;
    - 9.2 Truss ply-to-ply;
    - 9.3 Field splices.
  10. Calculated deflection ratio and/or maximum description for live and total load;
  11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss drawing or on supplemental documents; and,
  12. Required permanent truss member bracing location.
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## Chapter 8 ROOF-CEILING CONSTRUCTION

R802.10 Wood trusses.

R802.10.1 Truss design drawings. Truss design drawings, prepared in conformance with Section R802.10.1, shall be provided to the building official and approved prior to installation. Truss design drawings shall include, at a minimum, the information specified below. Truss design drawing shall be provided with the shipment of trusses delivered to the job site.

1. Slope or depth, span, and spacing;
2. Location of all joints;
3. Required bearing widths;
4. Design loads as applicable;
  - 4.1 Top chord live load (including snow loads);
  - 4.2 Top chord dead load;
  - 4.3 Bottom chord live load;
  - 4.4 Bottom chord dead load;
  - 4.5 Concentrated loads and their points of application;
  - 4.6 Controlling wind and earthquake loads.
5. Adjustments to lumber and joint connector design values for conditions of use;
6. Each reaction force and direction;

7. Joint connector type and description (e.g., size, thickness or gauge); and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface;
8. Lumber size, species and grade for each member;
9. Connection requirements for:
  - 9.1 Truss-to-truss girder;
  - 9.2 Truss ply-to-ply;
  - 9.3 Field splices.
10. Calculated deflection ratio and/or maximum description for live and total load;
11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss drawing or on supplemental documents; and,
12. Required permanent truss member bracing location.

R802.10.2 Design. Wood trusses shall be designed in accordance with accepted engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section R106.1.

Part IX Referenced Standards  
Chapter 43

<b>TPI</b>	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719	
Standard reference number	Title	Referenced in code section number
TPI 1-2002	National Design Standard for Metal-plate-connected Wood Truss Construction . . . . .	R502.11.1, R502.11.2, R802.10.2, R802.10.3, R802.11.1

## Appendix B

ANSI/TPI 1-2002

National Design Standard for Metal Plate Connected Wood Truss Construction

Chapter 2 – Standard Responsibilities in the Design Process Involving Metal Plate Connected Wood Trusses

### 2.5 BUILDING STRUCTURAL SYSTEM DESIGN DOCUMENTS

- 2.5.1 The Building Designer, through the Structural Design Documents shall provide that the Structural Elements and Trusses shall not be subjected to adverse influences including, but not limited to moisture, temperature, and corrosive chemicals and gases. This provision shall specifically include notice for the Truss Designer of environments expected to result in wood moisture content exceeding 19 percent, and temperatures and/or corrosion potential that are unusually high relative to typical wood buildings.
- 2.5.2 The Building Designer, through the Structural Design Documents shall provide information sufficiently accurate and reliable to be used for facilitating the supply of the Structural Elements and for developing the design of the Trusses for the Building, and shall provide the following:
- 2.5.2.1 All Structural Element and Truss orientations and locations;
- 2.5.2.2 Information to fully determine all Truss profiles;
- 2.5.2.3 All Structural Element and Truss bearing conditions;
- 2.5.2.4 The location, direction, and magnitude of all dead and live loads applicable to each Structural Element and Truss including, but not limited to, loads attributable to: roof, floor, partition including any directions other than given in ANSI/TPI 1-2002, mechanical, fire sprinkler, attic, storage, rain loads and ponding, design wind speed and exposure category, snow, snow drift, unbalanced snow load, and seismic forces;
- 2.5.2.5 All Structural Element and Truss anchorage designs required to resist uplift, gravity, and lateral loads;
- 2.5.2.6 Allowable vertical and horizontal deflection criteria and any specific criteria per ANSI/TPI 1-2002;
- 2.5.2.7 Proper transfer of design loads affecting the Structural Elements and Trusses;
- 2.5.2.8 Adequate connections between Trusses and between Structural Elements, including Truss to Structural Element connections, but not Truss to Truss girder connections except such connections that are excluded from the scope of the Truss Designer's responsibilities.
- 2.5.2.9 Permanent bracing design for the Building, including bracing to resist wind, seismic, or other lateral forces, and permanent bracing for all Structural Elements and Trusses. The permanent bracing design shall incorporate the continuous lateral chord and web member bracing that is designated on the individual Truss Design Drawings into the overall bracing for the entire Building Structural System.
- 2.5.3 The Building Designer shall be responsible for the adequacy of the design of the Building Structural System or the adequacy of the Structural Design Documents. The Building Designer shall evaluate the effect of the Trusses and the Structural Elements supplied, on the Building Structural System.

## Appendix C

Minnesota Statutes 2007

Chapter 326. Employments Licensed By State

ARCHITECTS, ENGINEERS, SURVEYORS, LANDSCAPE ARCHITECTS, GEOSCIENTISTS, INTERIOR DESIGNERS

### 326.03 LICENSE OR CERTIFICATE REQUIRED.

**Subdivision 1. Plans; documents.** No person, except an architect, engineer, land surveyor, landscape architect, geoscientist, or certified interior designer, licensed or certified as provided for in sections 326.02 to 326.15 shall practice architecture, professional engineering, land surveying, landscape architecture, or professional geoscience, or use the title certified interior designer, respectively, in the preparation of plans, specifications, reports, plats or other architectural, engineering, land surveying, landscape architectural, geoscientific, or interior design documents, or in the observation of architectural, engineering, land surveying, landscape architectural, geoscientific, or interior design projects. In preparation of such documents, reasonable care shall be given to compliance with applicable laws, ordinances, and building codes relating to design.

**Subd. 2. Exceptions.** Nothing contained in sections 326.02 to 326.15 shall prevent persons from advertising and performing services such as consultation, investigation, or evaluation in connection with, or from making plans and specifications for, or from supervising, the erection, enlargement, or alteration of any of the following buildings:

(a) dwellings for single families, and outbuildings in connection therewith, such as barns and private garages;

(b) two family dwellings;

(c) any farm building or accessory thereto; or

(d) temporary buildings or sheds used exclusively for construction purposes, not exceeding two stories in height, and not used for living quarters.

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### 326.11 LICENSE AND CERTIFICATE REGULATION.

**Subdivision 1. Revocation or suspension.** The board shall have the power to revoke or suspend the license or certificate of any architect, engineer, land surveyor, landscape architect, geoscientist, or certified interior designer, who is found guilty by the board of any fraud or deceit in obtaining a license or certificate, or of attaching the licensee's or certificate holder's seal or signature to any plan, specification, report, plat, or other architectural, engineering, land surveying, landscape architectural, geoscientific, or interior design document not prepared by the person signing or sealing it or under that person's direct supervision, or of gross negligence, incompetency, or misconduct in the practice of architecture, engineering, land surveying, landscape architecture, geoscience, or interior design, or upon conviction of any violation of sections 326.02 to 326.15 or amendments thereof, or of any crime involving moral turpitude or upon adjudication of insanity or incompetency.

**Subd. 2.** [Repealed, 1976 c 222 s 209]

**Subd. 3.** [Repealed, 1976 c 222 s 209]

**Subd. 4.** [Repealed, 1976 c 222 s 209]

**Subd. 5. Reissuance.** The board may reissue a license to any person whose license has been suspended or revoked upon application for relicensure.

**Subd. 6. Replacement.** A new license to replace any license revoked, lost, destroyed, or mutilated, may be issued, subject to the rules of the board.

326.111 UNAUTHORIZED PRACTICE; DISCIPLINARY ACTION.

Subdivision 4. Actions against applicants and licensees.

(a) The board may, by order, deny, refuse to renew, suspend, temporarily suspend, or revoke the application, license, or certification of a person; censure or reprimand that person; condition or limit the person's practice; refuse to permit a person to sit for examination; or refuse to release the person's examination grades if the board finds that the order is in the public interest and the applicant, licensee, or certificate holder:

(1) has violated a statute, rule, or order that the board has issued or is empowered to enforce;

(2) has engaged in conduct or acts that are fraudulent, deceptive, or dishonest whether or not the conduct or acts relate to the practice of architecture, engineering, land surveying, landscape architecture, geoscience, or certified interior design, providing that the fraudulent, deceptive, or dishonest conduct or acts reflect adversely on the person's ability or fitness to engage in the practice of architecture, engineering, land surveying, landscape architecture, geoscience, or certified interior design;

(3) has engaged in conduct or acts that are negligent or otherwise in violation of the standards established by Minnesota Rules, chapters 1800 and 1805, where the conduct or acts relate to the practice of architecture, engineering, land surveying, landscape architecture, geoscience, or use of the title certified interior designer;

(4) has been convicted of or has pled guilty or nolo contendere to a felony, an element of which is dishonesty or fraud, whether or not the person admits guilt, or has been shown to have engaged in acts or practices tending to show that the applicant or licensee is incompetent or has engaged in conduct reflecting adversely on the person's ability or fitness to engage in the practice of architecture, engineering, land surveying, landscape architecture, geoscience, or use of the title certified interior designer;

(5) employed fraud or deception in obtaining a certificate, license, renewal, or reinstatement or in passing all or a portion of the examination;

(6) has had the person's architecture, engineering, land surveying, landscape architecture, geoscience, or interior design license, certificate, right to examine, or other similar authority revoked, suspended, canceled, limited, or not renewed for cause in any state, commonwealth, or territory of the United States, in the District of Columbia, or in any foreign country;

(7) has had the person's right to practice before any federal, state, or other government agency revoked, suspended, canceled, limited, or not renewed;

(8) failed to meet any requirement for the issuance or renewal of the person's license or certificate;

(9) has attached the person's seal or signature to a plan, specification, report, plat, or other architectural, engineering, land surveying, landscape architectural, geoscientific, or interior design document not prepared by the person sealing or signing it or under that person's direct supervision; or

(10) with respect to temporary suspension orders, has committed an act, engaged in conduct, or committed practices that may, or has in the opinion of the board, or the complaint committee if authorized by the board, resulted in an immediate threat to the public.

(b) In lieu of or in addition to any remedy provided in paragraph (a), the board may require, as a condition of continued licensure, possession of certificate, termination of suspension, reinstatement of license or certificate, examination, or release of examination grades, that the person:

(1) submit to a quality review of the person's ability, skills, or quality of work, conducted in such fashion and by

such persons, entity, or entities as the board may require including, but not limited to, remedial education courses; and

(2) complete to the satisfaction of the board such continuing professional education courses as the board may specify by rule.

(c) Service of the order is effective if the order is served on the licensee, certificate holder, applicant, person, or counsel of record personally or by certified mail, to the most recent address provided to the board for the licensee, certificate holder, applicant, person, or counsel of record. The order shall state the reasons for the entry of the order.

(d) All hearings required by this section shall be conducted in accordance with chapter 14, except with respect to temporary suspension orders, as provided for in subdivision 5, paragraph (d).

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### 326.12 LICENSE OR CERTIFICATE AS EVIDENCE; SEAL.

**Subdivision 1. Judicial proof.** The issuance of a license or certificate by the board shall be evidence that the person named therein is entitled to all the rights and privileges of a licensed architect, licensed engineer, licensed land surveyor, licensed landscape architect, licensed geoscientist, or certified interior designer while the license or certificate remains unrevoked or has not expired or has not been suspended.

**Subd. 2. Seal.** Each licensee or certificate holder may, upon licensure or certification, obtain a seal of a design approved by the board, bearing the licensee's or certificate holder's name and the legend "licensed architect," "licensed professional engineer," "licensed land surveyor," "licensed landscape architect," the appropriate licensed professional geoscientist legend as defined by the board, or "certified interior designer." Plans, specifications, plats, reports, and other documents prepared by a licensee or certificate holder may be stamped with the seal during the life of the license or certificate. A rubber stamp facsimile thereof may be used in lieu of the seal on tracings from which prints are to be made or on papers which would be damaged by the regular seal. It shall be unlawful for any one to stamp or seal any document with the stamp or seal after the license or certificate has expired, been revoked or suspended, unless said license or certificate shall have been renewed or reissued.

**Subd. 3. Certified signature.** Each plan, drawing, specification, plat, report, or other document which under sections 326.02 to 326.15 is prepared by a licensed architect, licensed engineer, licensed land surveyor, licensed landscape architect, licensed geoscientist, or certified interior designer must bear the signature of the licensed or certified person preparing it, or the signature of the licensed or certified person under whose direct supervision it was prepared. Each signature shall be accompanied by a certification that the signer is licensed or certified under sections 326.02 to 326.15, by the person's license or certificate number, and by the date on which the signature was affixed. The provisions of this paragraph shall not apply to any plans, drawings, specifications, plats, reports, or other documents of an intraoffice or intracompany nature or that are considered to be drafts or of a preliminary, schematic, or design development nature by licensed or certified individuals who would normally be responsible for their preparation. The required signature and certification must appear on all pages of plans and drawings that must be signed, but only on the first page of specifications, plats, reports, or other documents that must be signed. A stamp, printed signature, or electronically created signature has the same force and effect as an actual signature if it creates an accurate depiction of the licensed or certified professional's actual signature.

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## Appendix D

Minnesota Rules, Chapter 1800<sup>4</sup>.

### 1800.4200 CERTIFICATION AND SIGNATURE ON PLANS.

**Subpart 1. Requirement.** The certification and signature on plans, specifications, plats, reports, etc., is mandatory, as provided by Minnesota Statutes, section 326.12, subdivision 3. A person in direct supervision of work as referred to in the foregoing subdivision is construed to mean the person whose professional skill and judgment are embodied in the document signed, and who assumes responsibility for the accuracy and adequacy thereof.

**Subp. 2. Stamp.** The board has designed a stamp which combines certification and a space for signature. The size of the stamp together with the size of letters and spacing of lines may be varied to suit individual requirements. The stamp may be imprinted directly on the tracing and signature affixed thereto thus eliminating the necessity of duplicate signatures on prints.

**Subp. 3. Title sheets or first sheets.** The certification by each of the professions responsible for the preparation of bound specifications, reports, or other documents shall be shown on the title sheet or first sheets. The certification by each of the professions responsible for the preparation of plans or plats shall be shown on each sheet of the set of plans, or each plat.

A. The board licenses applicants as an architect, a professional engineer, a land surveyor, landscape architect, professional geologist, or professional soil scientist.

B. The official roster designates the branch of engineering in which the registered engineer was examined. An applicant for registration as a professional engineer is examined in the branch of engineering which the applicant selects and in which the applicant is deemed qualified as an applicant by the board.

C. A professional engineer may engage in practice in any branch of engineering; provided, however, that a professional engineer who certifies and signs plans, specifications, or other documents may be required to establish, to the satisfaction of the board, that the work was performed according to recognized and acceptable engineering standards and practice.

**Subp. 4. Language.** The following wording shall be incorporated in the certification:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

Signature: \_\_\_\_\_ Typed or Printed Name: \_\_\_\_\_

Date \_\_\_\_\_ Reg. No. \_\_\_\_\_

**Subp. 5. Permanence of document certification.** When a document has been certified with the signature of the design professional as specified in subparts 1 to 4, that signature becomes a permanent part of that document and cannot be removed at a later date for any reason.

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### 1800.4300 SEAL.

Each person may, upon licensure, also obtain a seal of a design approved by the board bearing the licensee's name and the legend, licensed architect, licensed professional engineer, licensed land surveyor, licensed professional

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<sup>4</sup> Copyright by the Office of Revisor of Statutes, State of Minnesota

landscape architect, licensed professional geologist, or licensed professional soil scientist. Plans, specifications, plats, reports, and other documents prepared by a licensee may be stamped with the seal during the life of a licensee's certificate if the certificate remains unrevoked, has not expired, or has not been suspended. The stamped seal may be used on documents in addition to the signed and dated certificate required under part 1800.4200.

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## Minnesota Rules, Chapter 1805.

### 1805.0200 PERSONAL CONDUCT.

**Subpart 1. Public confidence and personal integrity.** A licensee shall avoid any act which may diminish public confidence in the profession and shall, at all times, conduct himself or herself, in all relations with clients and the public, so as to maintain its reputation for professional integrity.

**Subp. 2. False statements and nondisclosure.** A licensee shall not submit a materially false statement or fail to disclose a material fact requested in connection with the application for certification or licensure in this state or any other state.

**Subp. 3. Knowledge of unqualified applicants.** A licensee shall not further the application for certification or licensure of another person known by the licensee to be unqualified in respect to character, education, or other relevant factor.

**Subp. 4. General prohibitions.** A licensee shall not:

- A. circumvent a rule of professional conduct through actions of another;
  - B. engage in illegal conduct involving moral turpitude;
  - C. engage in conduct involving dishonesty, fraud, deceit, or misrepresentation;
  - D. engage in conduct that adversely reflects on the licensee's fitness to practice the profession; or
  - E. permit the licensee's name or seal to be affixed to plans, specifications, or other documents which were not prepared by or under the direct supervision of the licensee.
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View all SBCA *Technical Notes* at [www.sbcindustry.com/technotes.php](http://www.sbcindustry.com/technotes.php)