

# Executive Director's Letter



*By Kirk Grundahl*

## **DESIGN RESPONSIBILITIES, GUIDELINES AND CONSIDERATIONS:**

We have been seeing more and more architectural specifications that have stated specifically: "The design responsibilities for this project will be as described herein not those in the non-mandatory appendix A of ANSI/TPI 1-1995" (which is "WTCA's Design Responsibilities " brochure); "The Truss Engineer is solely responsible for the safety and stability of the roof system and its components during erection;" and "All other truss bracing required during the erection or in the completed structure including the bracing connections to trusses and bracing anchorage is the responsibility of the Truss Engineer and

should be clearly denoted on the truss design drawings."

These statements should be of concern to any truss manufacturer since the specifications often are made part of a contractual relationship, and as such delegate design responsibilities. Because of this, WTCA has created a commentary called Design Responsibilities Guideline for Truss Manufacturers. Pertinent excerpts of this document follow.

**CONSIDERATION #1:** Include the provisions of WTCA 1-1995 in all contractual relationships entered into when selling trusses.

Should the contract that the builder or owner provides you with have provisions that are contrary to WTCA 1-1995, strike these provisions and add the appropriate wording from WTCA 1-1995.

If you have not made this part of your contract and a disagreement ensues, you will have to answer the following questions and make the appropriate business decision:

1. What risk are you going to take on by taking the job?
2. What compensation are you going to get for doing the extra work that is beyond our industry's defined scope of work? Does the compensation cover the risk you are taking?
3. Will you lose this customer by not taking this job? Given the position being taken by the customer, is the customer worth keeping?

Is the work being requested for you to undertake business you desire to do? Are you going to structure your business to undertake this work legally? For instance, if you are doing structural engineering work, state laws may provide specific business structure requirements? What compensation do you expect to get? How does the marketplace value the work you are performing? Does this compensation adequately cover the risk and the value you are providing?

**CONSIDERATION #2:** State clearly on a cover sheet with the design documents that you provide to owners, building designers and truss installers the following:

1. Metal plate connected (MPC) wood trusses are designed as individual structural building elements, not as roof or floor systems. The suitability and use of the components provided for this building design is the responsibility of the building designer, owner, or contractor. (See also ANSI/TPI 1-1995 Section 8.1.5 adopted by ICBO, SBCCI or BOCA.)
2. The building designer, owner, contractor or truss installer shall review and approve the Truss Placement Plan and each Truss Design Drawing for conformance with the requirements and intent of the Construction Design Documents, the effect of each Truss Design Drawing and Truss Placement Plan on other parts of the structure, and the effect of the building design on each Truss. (See ANSI/TPI 1-1995 Section 8.1.5 adopted by ICBO, SBCCI and BOCA.)
3. The building designer, owner, contractor and/or truss installer shall specify permanent lateral bracing where indicated by the Truss Designer on the Truss Design Drawings, to prevent buckling of the individual truss members due to design loads. The Building Designer shall specify how the permanent lateral bracing is to be anchored or re-restrained to prevent lateral movement if all truss members, so braced, buckle together. This shall be accomplished by (a) anchor-ages to solid end walls; (b) permanent diagonal bracing in the plane of the web members; or (c) other means when demonstrated by the Building Designer to provide equivalent bracing. (See ANSI/TPI 1-1995 Section 8.1.5 adopted by ICBO, SBCCI and BOCA.)

4. The general contractor, builder, and/or installer shall comply with the field storage, handling, installation, permanent bracing, anchorage, connections and field assembly requirements of the Construction Design Documents. (See ANSI/TPI 1-1995 Section 8.1.6 adopted by ICBO, SBCCI and BOCA.)
5. The general contractor, builder, and/or installer shall determine and install the temporary bracing for the structure, including the Trusses. (See ANSI/TPI 1-1995 Section 8.1.6 adopted by ICBO, SBCCI and BOCA.)

**CONSIDERATION #3:** Should the design professional argue over these responsibilities use the following concepts to persuade him/her that the industry approach should prevail:

**ITEM 1-** ANSI/TPI 1-1995 has been adopted by each of the model building codes - BOCA, SBCCI and ICBO.

**ITEM 2 -** Your State Professional Engineering Regulations

The design professional may argue that it is their right to specify how the work is going to be done and who is going to undertake this work.

However, Section 2 of the TPI standard sets forth requirements of the building designer to specify design loads, truss profile, and intended support locations, temperature and moisture environment conditions, and other special requirements to be considered in the truss design. The building designer must also provide for in his design truss deflections, truss movement, truss supports, and permanent truss bracing and lateral bracing as reference in Consideration #2 above.

1. It is also very likely that the state laws regarding the conduct of professional engineers and architects forbid them to delegate engineering work to nonprofessional engineering firms, like truss manufacturers.

Truss manufacturers need to understand that they cannot legally undertake engineering work based on state laws unless they have licensed engineers on staff. They certainly cannot be the delegated engineer. The engineering work that truss manufacturers can do is for the manufactured product only. A truss manufacturer is not considered an engineering company by most state laws.

Truss manufacturers can decide to become an engineering business in compliance with state regulations for engineering businesses. In most states this will require the business to be a separate engineering entity with professional engineers as principals in the company, and a license to do so will probably be needed.

2. Never state that you have an engineering department if you have no licensed professional engineers on staff. You employ truss technicians and do preliminary truss design work only.

**CONSIDERATION #4:** What happens to the truss manufacturer when there is no design

professional on the project? Who becomes responsible for the structure's engineering?

1. The answer we would like to have is that the building owner is.

2. The answer we get in the field is:

A. The truss manufacturer supplies the only sealed engineering drawings on the job. Who then appears to be the engineer for this job to the lay person - the truss manufacturer.

B. If the truss manufacturer has a professional engineer on staff that seals the truss design drawings, does this increase the risk of the truss manufacturer being responsible for the building design independent of our industry position?

3. How often do we take on engineering responsibilities by trying to help out our customer? Do we get compensated for the effort that we put into this work? Should you get compensated for this?

4. If the answer that you give to these questions is that you DO NOT want to take on these responsibilities, then implement consideration #2 above.

5. If the answer that you give to these questions is that you DO want to take on these responsibilities, then consider implementing consideration #3, item 2 above, and start an engineering company.

By the time this is published, we should have a good, final draft of this guideline and would appreciate any comments. We will incorporate any thoughts that will make this guide the best possible.

Finally, on the flip side of this, I received a call from Rip Rogers of Trussway, Ltd. who recently received a copy of our design responsibility document attached to the specifications stating that these defined the responsibilities for the project. So, it appears in some locations we are making solid progress.

We feel the more information we put into the market and the more clearly we define the scope of our work, the better off our industry will be in the long run.