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Director's Message

The New Quality Control Standard — Technology Advancement by Kirk Grundahl, WTCA Executive Director

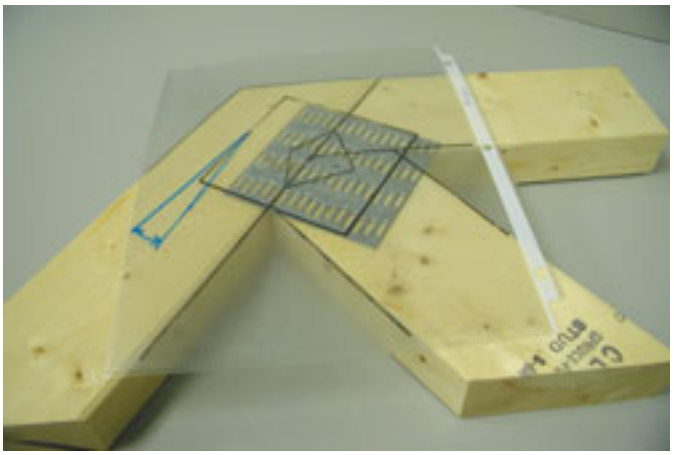
In a recent chapter summit, I heard that the new quality control standard was going to increase truss plate costs by 20 percent. Specifically where this thought came from I have no idea. Here are the facts on why we began the update of the quality control standard:

1. To date, the quality control of metal plate connected (MPC) trusses has been regulated through the implementation of chapter four in ANSI/TPI 1-1995, which was created from TPI-85 appendix P and all prior TPI quality control standard development work.
2. The intent of this standard, and all future standards, was stated by TPI's Technical Advisory Committee (TAC) to be, "Metal plate connected wood trusses shall meet the minimum manufacturing quality requirements specified in this chapter, so that design assumptions are met."
3. Some shortcomings were identified by component manufacturers using this standard. These shortcomings centered around the difficulty truss manufacturers were encountering with:
   - Truly implementing the standard.
   - The extensive amount of time required to thoroughly and accurately inspect a single truss under the current procedures.
   - The lack of clearly defined inspection sampling requirements and frequencies.
4. All of this led to a disenchantment with, and a disincentive to implement, in-plant quality control procedures.
5. Research was started to identify the correlation between variances from the standard and the actual field performance of trusses.

Like many standards and specifications, the new standard relies upon industry data as well as the considerable judgment of industry and TPI member engineers, who are the closest to the day-in day-out engineering aspects of our industry. A key objective was to identify and ensure that we clearly understood the relationship between variances from the standard and the finished product's structural performance.

Testing began so that our industry had a firm

foundation to achieve sound quality control. This was done while taking into account the scrutiny our industry would receive from a wide array of experts both inside and outside of our industry, as this quality standard (as part of the national design standard) was going through the TPI consensus process.



Utilizing the Joint QC Detail, proper plate placement under the PPM Inspection is quick to check.

Our intent all along was to create a quality control procedure that:

- Is clearly linked to structural performance.
- Better fits the current manufacturing environment, which will lead to an increased use of quality control as a manufacturing process development tool.
- Leads to an industry competitive advantage rather than simply another cumbersome regulatory restriction.

Many manufacturing industries have recognized that quality control can be a springboard to new and more sophisticated products. The members of the WTCA Quality Control Committee and Board of Directors who reviewed the quality control issues in our industry in depth recognized both the constraints that the existing standard placed on our industry and the opportunities a more practical standard would afford our industry as we develop more sophisticated engineering and technology.

The new standard, using the Plate Placement Method (PPM) and inspection frequency requirements, provides the option of a faster and more comprehensive quality control method where a degree of conservatism is introduced to compensate for those items that no longer go through as detailed an evaluation as before. For those who find the new procedure incompatible with their manufacturing operations, the Tooth Count Method (TCM) embodies the original inspection procedure as set forth in the existing standard with slight modifications and can be used in lieu of the new PPM method when the new standard is adopted.

So back to the original question that began this discussion: Will my plate costs increase 20 percent? This was a concern of WTCA from the very beginning—and furthermore, why address manufacturing quality when trusses have performed well for the last 40 years? We were also mindful that as the quality standard went through the vigorous consensus process, academicians, engineers and building officials from both inside and outside of our industry (all of whom may, and many do, participate in the TPI consensus process) would no longer be satisfied by relying on simplistic historical performance to justify our design and quality control methodology.

Given this, we had countervailing objectives to manage. We had to keep the costs of production similar, and make the quality control process more efficient, and therefore less costly to implement while providing the technical foundation that everyone believed could be justified from an engineering perspective.

To deal with this we asked TPI TAC to perform a cost sensitivity analysis for us on a typical run of trusses as well as a variety of trusses produced with real plate inventory files. The findings from the TPI TAC engineers was that the plate size increase in the absolute worst case could be as much as seven percent depending on what the truss manufacturer used for handling factors, minimum plating for specific joints and plate inventories. Under normal current manufacturing conditions it appears that it will be three percent or less. In the worst case, this translates into an increased truss cost of about one quarter of one percent (0.28%), or $0.11 on a $40 truss. However, there is going to be a significant cost savings in the time that it takes to implement quality control in the plant to assure compliance with the minimum TPI quality standard. Based on conversations with those who conformed to the old standard and who have also used the new one, it is believed that this is going to save at least 50 percent of the time it took for each truss inspected.

Finally, all those involved in this process felt that:

- Efficient quality control presents industry opportunities if implemented, and threats to the industry if not.
- There is no motivation to develop new, more structurally-efficient design procedures if trusses, through an accurate quality standard, cannot be shown to meet the current design assumptions.
- New structural products and component markets cannot be pursued if quality is perceived to be lacking.

As we advance our industry's technology, the true goal of the new quality standard is to allow our industry to pursue new structural component application opportunities by making components more reliable and economically efficient through increasingly sophisticated engineering.

SBC HOME PAGE

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