

# STRUCTURAL BUILDING COMPONENTS MAGAZINE (FORMERLY WOODWORDS)

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"Thoughts on the Future of the Wood Truss Component Industry" by John E. Meeks, P.E.

Over more than 30 years of associating with the wood truss industry, I have seen tremendous changes in the industry. From slide rule and graphic truss design methods to some of the most sophisticated computer analysis methods. From banging plates into place with no-bounce hand hammers to automated set-up reaction pads tied into computer generated joint coordinates. I have witnessed many changes in this industry, too many to enumerate. However, looking ahead, I still see many changes to come.

## DESIGN:

Wood truss design will continue to be done in the shops of the truss component manufacturers and plate manufacturers, but will be expanded, with their three-dimensional computer programs, to include "system" design of the entire roof or floor system. Building designers at present seem to be anxious to turn over the technical aspects of their design responsibility to others, due to a sad lack of knowledge in this field.

Therefore, wood frame design analysis will be delegated to the truss component manufacturer who should and will be well paid for this responsibility, if not within the price of the product, then by contract with the building designer. This design will, of course, include temporary and permanent bracing for the proper installation of the component system.

There will be a greater emphasis on prefab bracing units that drop into place between truss components during installation as both temporary and permanent bracing. These units are saleable products that should be supplied with the trusses, together with the necessary hangers and connectors.

## MATERIAL:

Since about 80% of the cost of wood truss components is in lumber, the continuing effort to reduce costs should be concentrated in lumber volume reduction. It has been my vision for many years to see wider ranges of lumber grades and sizes. With the increasing dependance on fast growth, low density lumber, a better range of sizes for the component industry, especially in the smaller sizes, is necessary and will produce better "component" grades for 2x2, 2x3, 2x4 and 2x5 sizes. I believe lumber sizes over 2x6 will probably be laminated in the near future, with denser laminates in the top and bottom fibers, for maximum strength and stiffness (as in GluLam).

Manufacturers producing all steel trusses will soon see the advantage of combining steel and wood in some configurations. Steel tension webs, never really accepted in years past, will see a come-back in popularity.

Present truss designs recognize the stiffness contribution of properly attached plywood on the top chord. The use of a metal strip on the bottom edge of some top chord members would "transform" the chord effectively into a theoretical "I" beam, increasing its capacity.

Galvanized steel connector plates have, in my opinion, reached their peak in balance between design capacities in gripping strength in wood and net section strength of steel. Unless someone discovers a major improvement through some kind of coating, supplementary nailing, or other means, connector plate values will probably remain about the same. Hot dipped galvanizing, after fabrication, higher strength steel, stainless steel, or other special conditions may be used in isolated areas.

### **MANUFACTURING:**

Wood truss components will see the greatest changes in the manufacturing areas. Proper selection of lumber sizes and grades will be most important for cost savings. Better lumber storage, handling, cutting and assembly methods are in a constant state of improvement, which can be seen at each BCMC show and seminar.

The truss component manufacturer should have access to laminated lumber for the larger sizes of lumber or for special built-up lumber sections.

The greatest need, at present, is in the age-old quest to place connector plates in the right position. An automatic indexing machine to put the right size plate at the exact joint coordinates, (top and bottom?) must be developed sometime in the future. I visualize connector plates pre-packaged in disposable or returnable magazines. The truss assembly will run back and forth through the indexing machine until all plates are pressed in place. Magnetic detectors will "sound off" at a missing or misplaced plate.

### **DELIVERY & INSTALLATION:**

Truck delivery will remain the best and most economical method of delivering truss components to the jobsite. Delivery units have also advanced to the point of near perfection. Large roll-off trailers will remain the most accepted method of delivery.

At one point many years ago, I was convinced that a truss manufacturer should be the installer of the truss components it manufactured. Builders and erectors have improved their techniques, but are still faced with young, inexperienced workers who have little or no knowledge of installation process or safety. Despite the many warnings delivered to every job site, truss toppling accidents, not as frequently now as in the past, still occur and are still just as damaging to the manufacturer in reputation and litigation.

With the additional responsibilities described above, it is my belief that many truss

manufacturers will face the inevitable and hire responsible dependable erection crews to install their products.

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John E. Meeks, P.E., is a Consulting Engineer from Fort Lauderdale, Florida. He will be one of the speakers answering the questions "When an Accident Happens, What Should You Do?" during one of the Breakout Sessions at BCMC '99.

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