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Round End Webs: An Industry Secret by Kris Craft-Alberti, President, Renaissance Technology Enterprises

Don't overlook a product that can help you reduce end waste and build trusses quicker!



Achieving ultimate plant efficiency is the goal of every component manufacturer. From very small to very large truss plants, small changes resulting in bottom line positives are tried and tweaked every day.

At BCMC 2004, component manufacturers had the option of attending educational programs on getting the most out their existing equipment, ROI when choosing to automate, and similar subjects about increasing plant efficiencies. However, a quiet industry secret of success is being largely overlooked—round end webs (REW).

Most people associate round end webs with proprietary products and maybe immediately dismiss the idea as a product or license fee. However, those who haven't dismissed the idea are thriving in their markets. What is more, they have learned some manufacturing concepts that transcend just using round end webs.

BENEFITS OF MASSIVE BATCH CUTTING

Think of using round end webs like you use your plates now. Component manufacturers carry a variety of plate sizes, which work on any number of truss configurations. If good production accounting is done, you can accurately predict the sizes and quantities that will be used in a given period of time. Software is set to design trusses to select plate sizes and gauges in inventory.

These are the same concepts that can be used with round end webs. Webs are cut in 6" increments, such as 1'6", 2', 2'6", 3' and so forth. All available lengths are then placed in the software like a plate inventory. The software then

designs trusses using the sizes you have in stock. Now you probably cut custom webs for every roof truss you design, but with REWs, you design to what you already have cut.

The basic concept of working with round end webs is to use mass batch cutting to your advantage. If you knew you could pre-cut 70 percent of your next 100 jobs at one time, would you do it? You may object, saying handling and sorting the material after you cut it may offset any cutting advantages you may have achieved. But with round end webs, you know that you will use each size of webs you cut in many different trusses. Also, since length is typically the primary variable, storing and picking webs for individual jobs is very easy.

Hopefully, you have already found that batch cutting floor webs is a no-brainer. You should have some standard profile angle webs you're using now for different depths of floor trusses. One advantage of using round end floor webs is that, for example, a 30" web can be used in two profiles (12" and 16") instead of one. The round end profile is almost invisible in floor trusses.

OPTIMIZATION BENEFITS

What percentage of webs do you currently optimize? Probably much less than you think. Why? Because from the truss technicians' point of view, it's a hassle. It slows down design production. And because we don't reward anyone for putting out less product in a truss plant, it's hard to force designers to optimize.

But optimizing is huge! Even with angle webs, if you did optimize every web, you could save up to 15 percent¹ of your actual web lumber usage. Take the time to figure out what that number would be!

Round end webs force you to optimize every web in every truss. Most software manufacturers have an auto-optimize feature that places your stock length round end webs in at the initial design phase. So it's relatively quick for the technicians to incorporate REWs. Not only do you save all that actual web lumber used, but you get the labor savings in the shop.

REWs bring one more special benefit from a management point of view. Since technicians are the hardest to measure production on, it may be hard to actually set a measurable goal to reward their performance. However, you can easily find a system to track the percentage of REWs they are designing with. This translates into optimization savings. It's your chance to give the technicians some credit!

KEEP IT SIMPLE

With the turnover in the labor force in almost any market, simplifying our manufacturing processes and training periods is always a positive. REWs do that. From a cutting point of view, consistently and quickly setting up saws to cut webs is one of the most technical production jobs in the plant. Yet, a savvy laborer could replace a seasoned sawyer when cutting REWs. Length is the only variable, so if you can read a tape, you can cut round.

At the tables, there are subtle but measurable advantages. Webs cannot be stocked wrong and do not need to be flipped over to go in correctly. By nature, REWs are a little more forgiving at joints and always fit tightly. New laborers can be trained in their use quickly and experienced laborers can implement an REW system immediately.

Quality in production can be more easily managed as the joints must go together tightly, perimeters must stay consistent, and poor quality lumber can be culled and replaced immediately.

OOPS! MIS-CUTS & WHAT WE CAN LEARN FROM REWS

Mistakes happen. Angles cut wrong. Boards are slightly long or short. The combined variations in lumber make something just not fit. Unacceptable lumber gets through to the table. Do you have a consistent way of dealing with the inevitable? Or do you act like those things never happen and leave it up to the truss builders to deal with?

Mis-cuts are almost eliminated by REWs. Small variations in length are often "absorbed" by the round profile at the

end of the web. Webs can be culled and replaced immediately if the lumber does not meet grade, WITHOUT stopping production at the table and at your saws. Without REWs, your truss builders may put the bad web in the truss because they don't want to hold up production."

What's the lesson for angle users? Even the most accurate software and equipment cannot account for lumber variations. So dare I say it? SKILL SAW is not a bad word or a sign of bad quality. If you have quality employees that can make "just in time" quality joints, use them. If that makes you too nervous, designate a sawyer station that will be least impacted by cutting mis-cuts.

FOR THE SKEPTICAL—WHAT ABOUT THE GAP?

It's not a gap, it's an engineered void. Just like those other really big engineered voids in trusses. For those of you who square cut your king posts in scissor trusses, you already work with similar engineered voids. The software accounts for any missing teeth in the king post, just like it does when designing using REWs.

You could also call REW joints "single point of contact joints." That's what ANSI/TPI 1-2002 calls them in section 3.6.7 (see Figure 1 below). Truss manufacturers imagine they may have trouble with customers or building officials who are not familiar with the webs. A quick reference to the standard relieves all those fears.

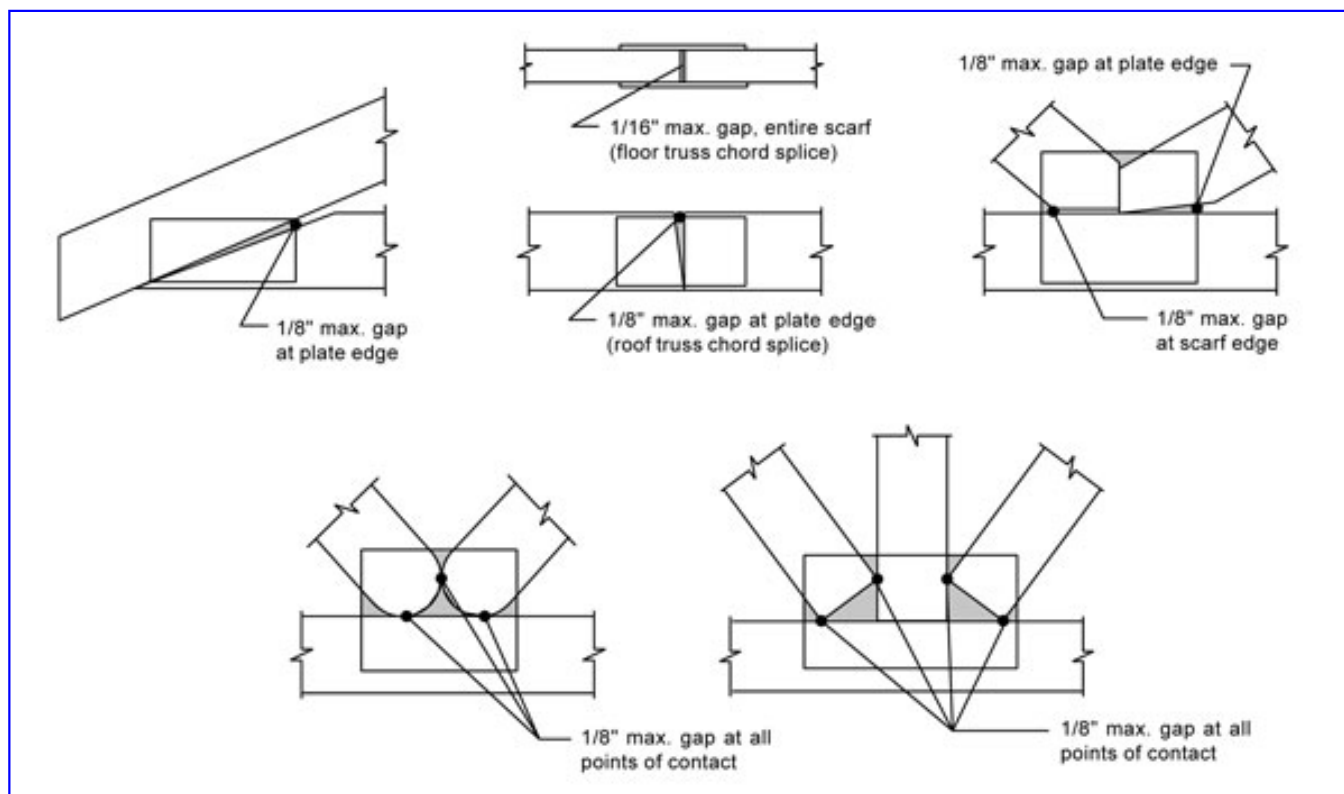


Figure 1. Taken from ANSI/TPI 1-2002, Figure 3.7-3 Wood Member-to-Wood Member Gaps.

THE GOOD NEWS & THE OTHER NEWS

So you are excited about REWs now, but what is the catch? No catch, just a few costs to compare to your production savings. You could have up to a five percent increase in plate costs if you don't already plate for handling. Most manufacturers see no appreciable increase in plates. Compare that to a 15 percent savings in web lumber.

You may have costs for licensing (in roof trusses only); compare that to savings of up to 70 percent of your web sawyer labor costs. And you may have added machinery costs, which compared with angle component equipment are considerably lower. ROI is less than one year in most cases.

DON'T MISS THE FOREST FOR THE TREES

REWs exist in over 35 markets across the U.S. Truss plants of every size are using them successfully and if you are their competition, they probably don't want you to know about the benefits they're reaping! Some of the oldest truss manufacturers in the country are using REWs, individuals who paved the way for the industry and have built solid companies. They are not stuck in the "that's the way we've always done it" mentality.

You see the advantages, but aren't sure you want to try this "radical" idea. All the reservations and concerns you have, those truss plants have had and overcome. If nothing else, review the savings that can be generated using REW concepts and see what you can apply to your angle cut operation now!

¹ According to testing conducted by Renaissance Technology Enterprises

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