

### at a glance

- Almost without exception, each of these automated devices or improvements have been designed to make the truss or wall building process more convenient, faster, more productive, more accurate, of better quality, and less costly.
- One of the virtues of automated saws is their ability to set themselves up without intervention by the operator.
- Is your insurance provider aware of the improved safety that certain types of automation brings to your plant? If he isn't, you should be leaning on him to give you a break! It could be significant.

## Reducing Risk with Automation

by Jerry Koskovich, P.E.

Improved safety is yet another perk to automation.

**F**or a couple of decades now, I and a few others have been preaching the virtues of automation. Since the introduction of the first automated component saw, we've seen an evolution in machine design and development that has affected virtually every piece of hardware utilized to fabricate a truss or wall frame.

Stop and think about it. Today we have automated component saws instead of the manual hand crank varieties, automated radial arm type saws, automated linear feed saws that cut and mark components, automated material handling systems that take the raw lumber to the saws, crooked lumber sensors that position saws to make good parts from crooked stock, automated conveyances that move the cut components from the saws to the truss assembly stations, automated jiggling systems that position pucks to properly outline the truss

perimeter, laser projection systems that confirm the location of components and plates on trusses, ejectors to move the truss from the pressing table, automated conveyances that move the partially pressed truss through a finished roller press, automated inspection devices that detect incorrectly positioned or missing nail plates on truss joints, and automated stackers to arrange the truss pile for proper banding and further handling.

**Even the most conscientious employee can occasionally fall victim due to lack of attention...especially when he's doing something he's done a thousand times before.**

That turned out to be longest paragraph I've ever written and that you'll ever see me write. Frankly there just wasn't a good place to stop and I'm sure I probably overlooked an item or two! As the saying goes, "We've come a long way, Baby!" Almost all of the above has taken place in the past twenty years!

Almost without exception, each of these automated devices or improvements have been designed to make the truss or wall building process more convenient, faster, more productive, more accurate, of better quality, and less costly; plus, of course, provide a better bottom line for the truss or wall fabricator. But automated devices have had a few other effects that are often overlooked, yet those oversights could be among the most important of all!

I can't remember when I first heard about OSHA, but it definitely came into being during the middle of my first career. We're all familiar with some of the vagaries in interpretation or enforcement in its myriad of rules. I remember the OSHA cowboy as depicted in a cartoon many years ago. It was good for a serious belly laugh! But OSHA was no laughing matter.

While we all can take issue with some of those vagaries I alluded to earlier, we must also recognize that the underlying intent of the OSHA regulations had merit. And, further, there were teeth in the rules as repeatedly demonstrated by the fines levied during enforcement by governing agencies.

In addition to the penalties occasionally administered by OSHA, there is the additional cost burden brought on by workers' compensation administration, injury claims and insurance. All of these costs have a negative impact on the bottom line, to say nothing of the injuries and pain that may have been or will be born by the injured employee.

So what's my point? How can the fabricator relieve some of the cost-burden and liability of being in the truss or wall business?

Automation—that's how!!! Bet you're surprised, considering who it's coming from! Let me explain.

Everyone knows that saws are inherently dangerous. Let's face it—they're designed to quickly cut objects, wood in this case. Fingers and other bodily appendages can be cut even easier!

Having grown up in a construction family, I've always been around saws of some kind. So had my dad. But I can remember when he accidentally stuck his hand into the knives of a jointer. Was he a novice? Anything but!

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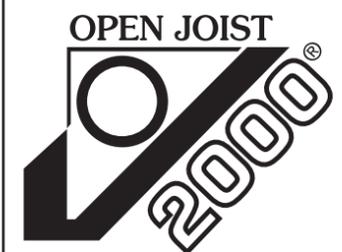
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In my own experience I needed a few stitches when a board kicked back on my hand while using a table saw. Another time I found out a chain saw will easily go through jeans and into the soft flesh of a thigh without putting a strain on the motor! Was I a novice or inexperienced? Heck no!

My point is, even the most conscientious employee can occasionally fall victim due to lack of attention...especially when he's doing something he's done a thousand times before. Truth is, a novice may be more cautious when working around a saw...unless he's just plain stupid! Present company included!

Manual component saws historically have the appearance (and, in some cases, the potential) to be dangerous—especially if the operator is overconfident. These early saws adjusted blade position with hand cranks. Most of them didn't have brakes on the saw blades, which meant the blades were often free spinning when the last piece of the wood left the saw. It wasn't uncommon to see an operator use a 2x4 as a pry to wedge between the blade and motor to stop the spinning prior to beginning the blade adjustment process.

Worse yet, he might not use the pry and just go for the cranks and levers while the blade was still spinning. In my pre-automation days, we actually had a sawyer reach out and grab a free spinning blade in a moment of thoughtlessness. Fortunately he didn't lose any fingers, but did cut himself pretty good.

One of the virtues of automated saws is their ability to set themselves up without intervention by the operator. With most automated saws, there should be no reason for the operator to put himself in harm's way during the setup process.

All of the automated component saws currently on the market have powered lumber feeding systems that require the individual 2x stock pieces to be fed to the saw by the operator. Some require more interaction by the operator to put the raw stock into the conveyor and cutting process, while others basically feed themselves. In either type, the operator should have minimal exposure to the saw blades. (However, it wouldn't be a bad idea to have your safety director, or some other management type, take a look at how the operator is doing things down at the saw. Bad habits have a way of creeping in to even the best of operations.)

The newer linear feed saws take things even further in terms of minimizing sawyer exposure to potentially hazardous functions. Most all of the ones I'm familiar with have totally enclosed single blade saws. Short of the operator intentionally sticking a hand or arm into the enclosure, there should be virtually no chance of the operator being cut by the saw. So there's no more trying to cut very small, intricate parts with

## Take a look at how the operator is doing things down at the saw.

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a chop saw...or make long scarf cuts with a radial arm saw... or rip bevels with a table saw.

If the linear feed saw also has an automated material handling system on its in-feed side, you have eliminated the prospect of the operator shoving the trailing end of the lumber stock into the cutting chamber.

Not all of the hazards of truss plants center around saws. Truss builders are occasional victims when jumping up and down off of the press tables or shooting themselves with nail guns. Both of these potential hazards can be minimized to some extent by the use of walk through tables and automated jiggling systems. With their use, there is simply less reason to be on the table...and less time spent jumping up and down on them.

I'm sure I could go on and itemize the safety advantages that most any of the machines or devices I've mentioned above bring to the table (pardon the pun). You likely know their virtues better than I do since you deal with them every day. My point is you may have made your operation very much safer by making use of all of the machines mentioned above, but is your insurance provider aware of this? If he isn't, you should be leaning on him to give you a break! It could be significant.

Probably the biggest "unsung" safety virtue of automated equipment is that it reduces "soft risks" down to the nub. I'm talking about bodily wear and tear...which all but certainly costs you more in workers' compensation administration, insurance claims and premiums, and sick days than out-and-out machine related injuries do. Back injuries are probably the number one offender.

Part of it is all the lifting inherent in any fabricating plant. Lumber gets heavy...even a 12-foot 2x4 can be very heavy, especially when you're holding it from one end. If you have an automated feed system on your saw that is forklift-loaded a bunk at a time, that's several hundred less pieces someone has to lift and position manually. Multiply that by three or four hundred bunks a year—probably well over 100,000 pieces—and you've saved some backs.

If that same saw is marking the parts it's cutting, you've saved another operator on the back side of the saw from having to

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lift and jockey lumber around as he marks. A small thing in and by itself, yes, but all those added repetitive movements add up. (Practically speaking, automated saws produce components so fast these days that it would be near impossible for an operator hand-marking components to keep up.)

Another healthy wear and tear offender is the truss assembly operation. Watch how many times a truss builder jumps on and off the table during the course of his shift. That's not just an injury risk, it's a lot of wear on body parts. Now watch how much time he spends stooped over or on his knees, getting the jiggling in place. Watch the number of repetitive motions he makes hammering down jiggling blocks on a wood or soft-top table, or hand cranking down pucks on a steel slotted-top. Automated jiggling does away with probably 90 percent of all this.

At the start of this dissertation I mentioned beneficial "oversights" that may have been brought on by the development and use of automated machines in our industry. I've tried to list a few of the safety virtues accrued by their use.

Those of you who purchase and make available the use of such machines by your employees have a right to take some credit and pride in the fact that workers who may use these tools are probably safer and healthier than they've been in the past while performing their jobs. And are probably incurring a lot less bodily wear and tear. Take a bow.

Another benefactor of the other "oversight" I mentioned is the consumer...the family who buys your products for his home or business. He doesn't realize the quality of the product he's buying or how much you've saved him in the cost of the engineered trusses and walls you supplied. Maybe you ought to bring it to his attention through your marketing efforts. Imagine what the product would cost if you, the fabricator, hadn't chosen to automate the many processes involved!

We who develop these machines take some pride in the above as well. Forgive us for smiling a bit. **SBC**

*Jerry Koskovich is President of The Koskovich Company in Rochester, MN.*

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