

Commentary-Jerry Cvach-Retired

A Funny Thing Happened to Me When I Entered the Wonderful World of the Connector Plate Business

Dave Pasolli asked me if I would be willing to write about history of the roof truss industry and the connector plate companies that spawned it. I've decided to give it a try; but I'm forewarning the readers, that I'm neither a writer nor a historian, combined with being a man of certain age with a failing memory. It should be read with that in mind.



My 53 year association with the industry starting in 1969 is also concurrent with my journey to become a Canadian. I was learning English, about the people and the country, about business principles and the truss design ropes all in the same time. Also let's not forget that in 1969 the industry was still in its diapers. The plate industry and its fabricators were facing the "terra incognita - land unknown" with innocence and a profound naiveté.

We were actually pioneering a new way of building roofs and floors and perhaps hoped, but weren't sure, we would revolutionize the wood construction industry. When that actually happened, the industry quickly matured but what was lost was the excitement of the early pioneering days.

Note: My personal experiences are in *Italics*.

An ad in the newspaper

I worked as a swamper on truck delivering materials to construction sites. Everything was loaded and unloaded manually and the work was done essentially outdoors. The 1968/1969 winter was one of the worst on record. For days on end the temperature stayed at -40 degrees Celsius even here in Calgary. Stuffing newspapers for extra insulation into my gloves wasn't enough anymore. I started to look for an indoor job and didn't care what it would be as long as I would be close to a radiator. An ad in the "Classifieds" of Calgary Herald was looking for a draftsman to draw roof trusses.

I looked up “truss” in the dictionary and found out it was “an assemblage of members (as beams) forming a rigid framework”. I had been trained as a highway designer and a land surveyor and could draw, so I thought it was close enough and worth a shot.

I mailed out a resume and was called for an interview. Not expecting too much from it. I had come to Canada, a country with an astonishingly high standard of living just three months before, spoke very little English and was quite unsure of my ability to compete with the super workers who had created so much wealth. Obviously everyone had to be super educated, incredibly capable and hard worker. Yet, they invited me for an interview.

I knew nothing about the company, their business and what they were making. Those were the days before computers, internet and websites. My strategy was simply to talk very little and answer “yes” to every question. As an unskilled labourer I was paid by the hour but was told that in an office, one earned a salary. To replace my current wages plus overtime, I needed to earn at least \$350.00 per month.

The receptionist sent me to the office of a professional engineer Lawrence. The company had several businesses including land holding & development, some earth moving equipment, home building and the new venture, connector plate manufacturing.

Lawrence asked several questions to all of which, luckily, I could reply “yes”. Then he showed me samples of drawings and asked if I could draw them. They looked quite strange to me, but I could draw from someone else’s design so I said “yes” again. Then he took me for a tour of the premises.

Next to his office was the drafting room with three desks, filing cabinets and large wall to wall window. The tour was short; there were just two draftsmen, one for the land development company, and the overworked truss designer/draftsman with whom I would be working. The drafting office looked similarly to its European counterparts, perhaps simpler. Larry kept talking and I kept agreeing with him at reasonable intervals.

The door in the right-hand corner led into a bigger, posher office furnished with a large desk and a swiveling chair. This was where the owner sat. He was a short, stocky man in his late forties. He smiled when Lawrence introduced me. Departing from the script instead of “yes” I said “hello”.

That was it; the whole interview took only a half hour or so. Lawrence told me I was hired, that the pay was going to be \$ 420.00 per month and that I could start at 8:00 am on the following Monday, to which I said “yes”. I was leaving when he asked if I had any questions at all.

I blurted out: “Did you really say \$420.00 per month?” Now it was Lawrence’s turn to say “yes”. Even though it was obvious that I could have been hired for less it didn’t matter to him. I guess it was the starting salary, not negotiable in either direction.

Thus I entered the wonderful world of roof truss industry. For the first 23 years I stayed with this connector plate manufacturer. The company grew exponentially, and it was lucky to get on board at the very beginning. The business eventually expanded into manufacturing truss equipment, the computer era came and we were writing our own software. Some 15 years later the company also bought a patent from an engineer in Washington State and started making wood I joists, the first Canadian company to do so.

Beginning

To my knowledge the first “Sanford” connector plates required keeper nails to hold the truss components together while they were flipped over for application of plates on the other face and then sent through a roller press. Laborious for sure, but still better than hammering in hundreds of nails through a metal plate with just holes punched in them.

In 1955 John Calvin (Cal) Jureit invented the first metal truss connector plate that did not require keeper nails, but they had to be pressed in hydraulically. He called the plate Gang Nail. To capitalize on his invention he formed Automated Building Components, Inc. (ABC) with headquarters in Miami, Florida. Later the company name was changed to Gang-Nail Systems, Inc. Cal built his company into the worldwide industry leader in truss plate and truss manufacturing. He went on to be one of the founders and the first president of the Truss Plate Institute in the USA (1961/62). ABC eventually merged with Hydro-Air Engineering, Inc. and was renamed MiTek.

This is a very simplified history. Many other companies in USA and very talented individuals helped along. From making trusses with just little C-clamps or roller press and cutting lumber with radial arm saws, the industry today has semi-automatized production lines, lumber is cut by computerized saws and trusses are designed lightning fast by computers. The industry is capable to manufacture large span farm and commercial trusses, floors, and wall panels.

Connector plate suppliers in 1969

In 1969 my “alma-mater” Tested Truss Systems (TTS) was one of several businesses operating from a building on Macleod Trail in Calgary. It was privately owned. The plate business was started by purchasing an entity called Earl’s Truswal around 1965 and was renamed TTS. The plates were made in Calgary. Three men punched the plates and a designer/draftsman designed the trusses. The designs were stamped by an external P. Eng. There was a rep in Kitchener Ontario who sold the plates warehoused in a barn on a

nearby farm. Whatever designs would be needed were done in Calgary. There was not a designated manager.

Gang-Nail Canada, now MiTek Corporation was the largest plate supplier, located in Toronto and the guys to beat in 1970s here in Canada. They were supplying the bigger companies to whom they gave territorial protection, one or two per province. To my knowledge there were only two in BC and Alberta each, one in Saskatchewan and Manitoba, two in all Maritime Provinces combined. I can't remember how many in Ontario and Quebec. This policy eventually proved to be very limiting as other plate suppliers were getting into business.



Another big plate supplier operated from Ottawa, called Trans Canada Truss (TCT). They were a division of Campeau Corporation, a land developer and an investment company. Their customers were on average smaller than Gang-Nail's, but many.

There was also Hydro Air and Panel Clip that never grew to be very large.

Struggle for coverage

TTS was very aggressive thanks to the young manager just 23 years old when hired in 1969. Let's call him Gerard. He was the purest capitalist I ever met, working hard, living and breathing connector plates. He was very observant, found out what the fabricators needed and made the rest of us do it. Frankly, he was obsessed with becoming the largest supplier in Canada and he motivated us to be the same. To me, the product of the communist country where there was no competition due to the state owning all

businesses, it was the best introduction into how the business can become successful by learning what the customer needs and then providing it.

Most of our customers were previously TCT clients and companies we recruited to get into business. Gang-Nail fabricators were hard to convert thanks to the protection policies (that eventually bit them) and frankly also because they were the first to market and their service was good. They were the originals and the rest of us were the generics, so there was a prestige involved.

TTS, later division of Jager Industries and Gang-Nail (MiTek), eventually became the largest connector plate suppliers in Canada with roughly the same volume of sales.

Eventually MiTek bought Jager Building Systems in 2006 and is now a dominant plate, truss manufacturing machinery and software supplier in Canada.

The “glory” years of building the industry in Canada

In 1969 a typical truss fabricator would be building trusses for just a rectangular building with gable ends. The trusses were 24 to 26 feet long, 2.5 to 4/12 slope, 24” spacing. If the house was “L” shaped it got more complicated as there had to be a girder truss and valley jacks. In early 1970s the builders started to ask for cottage roofs and we were off to the races. Up to this point the truss plate manufacturers would provide their customers with truss design manuals with series drawings for mono pitch, fink (W) and Howe trusses that would cover 90% of truss design requirements.

If a fabricator needed a special truss design they ordered it. In 1970’s these were still rare requests. In TTS, for example, the drawing #1 was drawn in 1965, and the first drawing I did on January 20, 1969 four years later was only #97.

Pretty well every plant today designs that many trusses before the first coffee break using computers that produce a truss design every few seconds.

We used slide rulers for calculating loads and reactions, Maxwell diagram would determine the forces in the truss members and connector plates were put on every joint manually. A good designer could do one design per day; a really great one could do two. There was no calculator in the design office.

Frankly the success of the plate company depended on how fast they could provide this service.

Design procedures

Canada is the largest structural wood producer in the world and virtually all residences up to four stories high are built from wood, but wood design was not taught at colleges and universities then. Small residential and farm buildings were designed based on empiric formulas, experience and simple load-span charts in the prescriptive building codes. They were built by “carpenters” who’s only required qualification was to have five dollars to buy a hammer with. Presumably to prevent the wholesale slaughter of Canadian citizenry, the residential building code was very conservative and it was slowing down the growth of the new truss industry.

Better design procedures were needed to squeeze the ultimate potential out of these structures, in our case the trusses. All plate manufacturers in the country did a lot of testing to compete with each other. It was the pioneering time that any new industry goes through in a bid to survive and to establish itself. It kept office workers in good physical shape, as the testing was done manually by loading up trusses, set up two feet apart, with 70 pound bundles of shingles until they broke. Typically the tests exceeded theoretical expectations, sometimes by considerable margins, resulting in design principles being changed. The Truss Plate Institute of Canada was formed in 1972 to write uniform design procedures that were then accepted by the building codes.

Those of you that know Jerry also know that there is no way his article could fit in one newsletter.

Continued in the March 2022 WWTa newsletter

If you have an idea for a commentary or would like to submit your own commentary for a future newsletter please let me know at dave@wwta.ab.ca

Economic Update

In Alberta, urban housing starts totaled 1,775 in January 2022, a year-over-year decrease of 14.1%. Canadian housing starts decreased by 22.8% over the same period. In Alberta, single-detached units, which comprised 32.4% of all units; decreased by 29.5%, while apartment units, which comprised 45.5% of all units, decreased by 1.7%.

Calgary starts were down 50% from 1122 to 561, while Edmonton starts increased by 13.3% from last January to 909 units. Lethbridge had a big jump, must have been a multi-family job.

Housing Starts Alberta						
	Jan-22	Jan-21	% Change	YTD 2022	YTD 2021	% Change
Alberta	1775	2066	-14.09%	1775	2066	-14.09%
Edmonton	909	802	13.34%	909	802	13.34%
Calgary	561	1122	-50.00%	561	1122	-50.00%
Red Deer	6	11	-45.45%	6	11	-45.45%
Grande Prairie	2	6	-66.67%	2	6	-66.67%
Lethbridge	155	31	400.00%	155	31	400.00%
Wood Buffalo	3	5	-40.00%	3	5	-40.00%
Canada	13220	17121	-22.78%	13220	17121	-22.78%

Could Alberta be headed for a Balanced Budget in 2022?

Here’s something that seemed unfathomable just a few months ago: Alberta could balance its budget books much sooner than anyone had expected.

With West Texas Intermediate crude closing at US\$92 a barrel and Western Canadian Select at US\$78 while I am writing this, a balanced budget for 2022-23 could be possible, although not likely. If the budget is not balanced, then it will be because the government chose not to report a balanced budget. The Alberta Budget will be released on February 24.

It is a stark shift from the bleak days almost two years ago, when an oil-price war between Saudi Arabia and Russia was escalating and the pandemic started, sinking crude prices into negative territory.

The province’s deficit ballooned to almost \$17 billion last year as revenues collapsed during the pandemic and resource royalties evaporated.

To balance the provincial budget for the fiscal year that begins in April, the province needs prices around US\$71 a barrel.

In November, the province’s mid-year fiscal update showed the 2021-22 deficit dropping to \$5.8 billion, down from a jaw-dropping \$18 billion from the initial projection made in last February’s budget. Bitumen royalties soared 413 per cent during that period.

The update also envisioned a \$3.3-billion deficit in the 2022-23 budget year, based on WTI oil prices averaging \$64 a barrel.

Every \$1 jump in the price of oil over the course of a year will increase provincial revenues — through royalties, higher corporate taxes and personal income taxes — by \$400 million to \$500 million. Instead of the \$3.3-billion deficit, we might be looking at something like a \$3-billion surplus.

As energy commodity prices climb and the province’s economy expands — set to lead the country with GDP growth of six per cent this year — the prospects of a surplus are strengthening, said Conference Board of Canada chief economist Pedro Antunes.

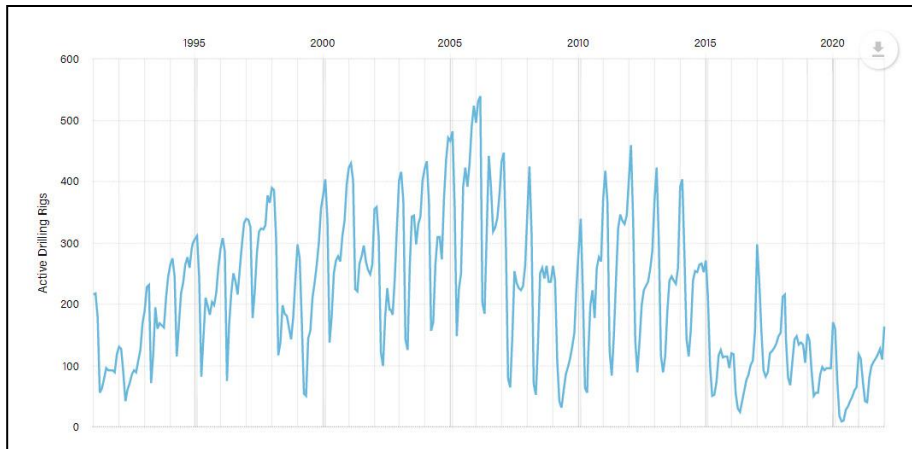
“It wouldn’t take much, in terms of oil prices at \$80 a barrel, to bring that into positive territory ... It’s entirely possible,” he said.

“Not that long ago, we were looking at sustained \$10-billion-plus deficits for a number of years.”

Taxpayer-supported debt is expected to top \$101 billion by the end of March. Debt servicing costs are nearing \$2.5 billion annually, while interest rates are expected to increase in the next year.

Alberta has only had a surplus once in the past 14 years, in 2014-15, when oil prices averaged \$80 a barrel and a \$1.1-billion surplus was posted.

And although the world does not seem to want to invest in the production of fossil fuels anymore, the high prices and profits are seeing investors and companies gearing up production, although not as strongly in the past. Active rigs in the province are up 37% to 163 compared to January 2021, but that is still a long way off of the 450+ rigs of 2005.



Active Rig Count Jan 1991-Jan 2022

The royalties are great for the tax payers of Alberta, but what really drives the prosperity in the Province are the well-paying jobs created. Oil companies are much more likely to pay off debt and return profits to shareholders than invest in increasing production, which will ultimately keep the supply down and prices high.

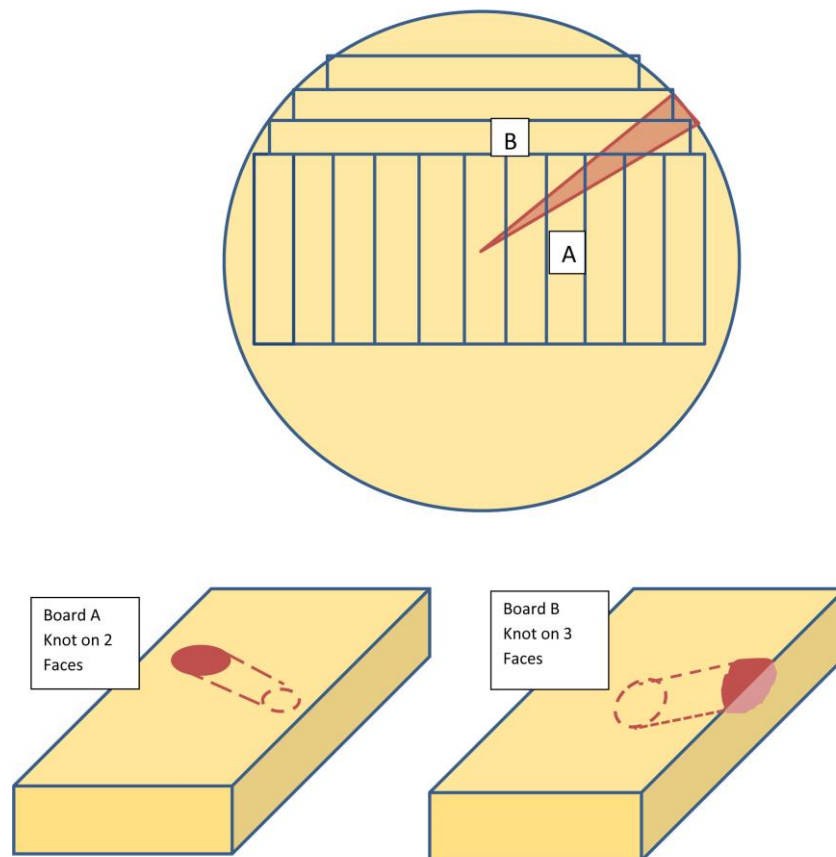
As we move to more renewable energy sources one question that never seems to be addressed is how is the government going to replace these royalties? I can only imagine that the consumers of green energy will be willing to pay the cost.

Quality Control

KNOTS

The next several newsletters are going to be dealing with knots; the issue is just too big to fit into one newsletter.

Knots are formed from branches that grow out from the pith through the trunk of the tree. This means that a knot is a solid piece running through the lumber. Knots will usually appear on more than one side of the piece.



In the diagram above you can see how the branch originating from the pith of the tree affects different boards depending on how they are cut out of the tree. The knot may go through 2, 3, or even 4 sides of the board.

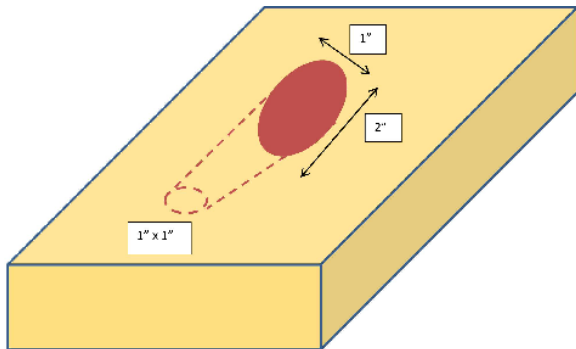
Knots reduce a piece of lumber's strength by displacing good wood. They have the greatest effect on strength of all the natural characteristics. It is quite often the actual grain deviation around the knot that may be the weakest link in the board.

We will look at how different knot are measured and how they are restricted.

Measuring Knots in Boards

It is the job of the lumber grader to measure knots, but I thought it may be helpful to know how they are measured.

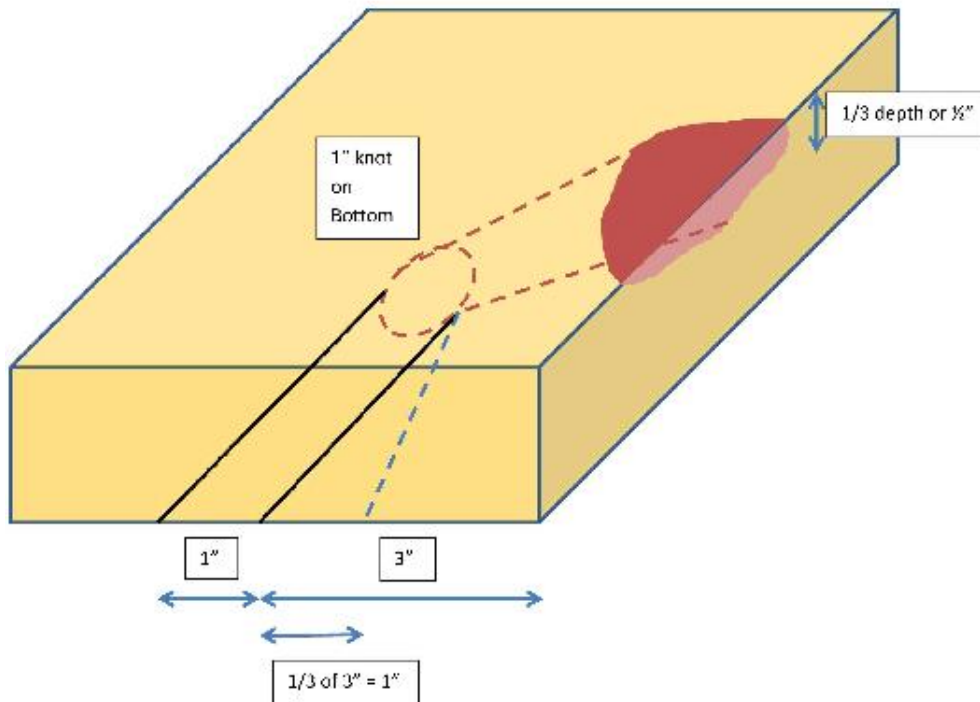
To measure a knot in a board, measure the knot as the average of its two diameters on the face.



If the knot on the top measures 1" x 2" the average is 1 1/2"

For measuring round knots that are on two faces of the board take the average width of both faces. If it is 1 1/2" on the top and 1" on the bottom side, the size of the knot is 1 1/4".

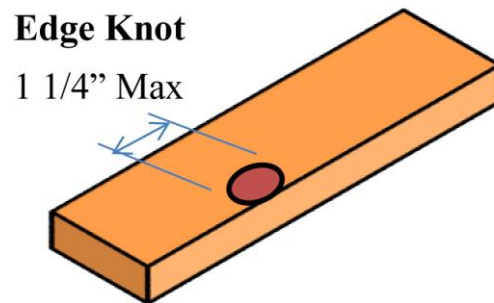
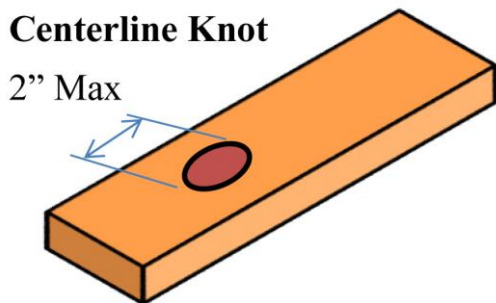
Measuring a knot on 3 or 4 faces is a little more complicated. I had to get Raymond Gendi from Alberta Forest Products to explain it to me.



Find the portion of the Lumber's thickness that the knot shows on the narrow face. For example, if the piece is 1 1/2" thick, and the knot shows for 1/2" on the narrow face, then the knot shows for 1/3 of the thickness.

Second, look at the wide face where the knot is farthest from the narrow edge (bottom), you just measured. In the example above the knot on the bottom is 1" and there is 3" of good wood between the knot and the edge. Take the 1/3 from the narrow face and then take 1/3 of the good wood on the bottom or 1" and imagine adding it to the size of the knot on the bottom. So in this case the size of the knot on the bottom would be equivalent to 2". Now average the two wide face measurements as you do with face knots.

NLGA rules for #2 Structural state that the maximum knot for a 2x4 can be 1/1/4" at the edge of the wide face and 2" at the centerline of the wide face. For a 2x6 they can be 1 7/8" at the edge and 2 7/8" at the center. It is a centerline knot if the center of the board passes through the knot.



More information on knots to follow in the March newsletter.

For more in depth information about lumber and knots check out the www.trustrainingonline modules #105 Quality Requirements, #107 Lumber Grade and Quality, #201 Lumber Picking, and #401 Placing Lumber.

Health and Safety Toolbox

Similarly to the Quality topic the WWTA would like to give you a monthly item you can discuss when doing your Safety Toolbox meeting.

International Repetitive Strain Injury (RSI) Awareness Day is **February 28th, 2022**, and we acknowledge the impact that RSI can have on workers and employers in our industry. Repetitive, awkward postures and forceful exertions are examples of work-related risk factors that can contribute to RSI/MSD.

Ontario has a very good MSD Prevention website that has all kinds of useful information.

[MSD Prevention](#)

Domestic Violence in the Workplace

Domestic violence is a pattern of behaviour used by one person to gain power and control over another with whom the person has, or has had, a personal relationship, including dating, marriage, adult interdependent partnerships, custody, blood relationships and adoption, as well as relationships stemming from these situations. This can range from subtle, intimidating behaviours to violent acts that result in physical harm or death.

Domestic violence can include physical violence, sexual abuse, financial control, emotional and psychological intimidation, verbal abuse, stalking and using electronic devices to harass and control.

Domestic violence becomes a **workplace hazard**, not a limited personal issue, when it occurs at, or spills over into, the workplace, putting the targeted worker at risk and posing a threat to co-workers. This is why domestic violence is included in the legislated workplace health and safety definition of violence (OHS Act, s. 1 (rr)).

When an employer is aware that a worker is or is likely to be exposed to domestic violence at a work site, the employer must take reasonable precautions to protect the worker and any other persons at the work site likely to be affected. -OHS Code Part 27, s. 390.3



Policy and Procedures

Employers

If domestic violence is, or may be, a hazard at a work site, employers must develop and implement appropriate policy and procedures as part of their violence prevention plan. Consider creating a domestic violence safety plan that includes:

- A process for workers to report domestic violence incidents they are a part of or have witnessed.
- Training to help workers recognize domestic violence.

Providing support for individuals suffering from domestic violence can protect the worker and other potential victims.

- Help victims develop an individual safety plan.
- Keep an updated list of organizational supports and local resources.
- Post domestic violence awareness resources in the workplace: fact sheets, posters, information about local supports.
- Be prepared to allow time off to help the worker make themselves safe. Eligible employees can take up to 10 days of unpaid, job-protected leave due to the effects of violence in the home. To learn more about domestic violence leave, visit the Alberta.ca Domestic violence leave webpage.

Workers

Workers are obliged to report if they believe domestic violence may be a threat or if a domestic violence incident occurs at the work site.

- Call 911 for immediate concerns.
- Recognize signs that a colleague may be in a domestic violence situation.
- If you feel comfortable doing so, approach the victim with a simple, “Are you okay?”
- Keep a record of your actions.

The Alberta Government has a new format OHS eNews you can subscribe to with all kinds of good material at: <https://ohs-pubstore.labour.alberta.ca/>

News and Events

WWTA AGM Date Moved

The Board of Directors of the WWTA has decided to push back the date of our Annual General Meeting to May 10, 2022 in hopes that restrictions will not be in place and our members can all attend. The meeting will be held at Fantasyland Hotel in Edmonton and registrations will be coming out shortly. It will be nice to get everyone back together and by having the meeting later than normal I am sure that the weather will be great in Edmonton.

A Conversation With...

The WWTA had a good conversation with Martin Carter on Feb 2 about the lumber market and this month we will be talking to Jerry Fullarton, GM of EWP with Taiga Building Products on March 9th at 9:00.

Conversation with Jerry Fullarton
Wed, Mar 2, 2022 9:00 AM - 9:30 AM (MST)

Please join my meeting from your computer, tablet or smartphone.

<https://meet.goto.com/800765397>

You can also dial in using your phone.

Canada: [+1 \(647\) 497-9391](tel:+16474979391)

Access Code: 800-765-397

The Effects of Tornadoes on Residential Structures.

We are planning on having a presentation from Gregory Kopp from the Western University that has been involved in the Northern Tornadoes Project (NTP) and research on how single family houses are affected, particularly the results of the recent tornado in Barrie Ontario.

Please mark April 19th for the presentation, an invitation will be going out shortly.



Damage from Barrie Tornado 2021

Membership Engagement

The President of the WWTA Derek Foss and the rest of the Board of Directors would like to hear from you and we will be setting up personal meetings to interact with your company to discuss what the WWTA is working on keep the lines of communication open. I will be reaching out to each company to set up a virtual meeting over the coming months. Feel free to contact myself to schedule a quick meeting with Derek.

Resolute to Improve Competitiveness of Wood Products With Buyout of I-joist Partner and Acquisition of Strategic Cogeneration Facility

[More](#)

Virtual Meetings

One day we will get back to meeting in a room I hope, but in the meantime if you have any topics you would like the WWTA to hold a virtual meeting on please let me know.

WWTA Annual Wage Survey

The deadline for submitting your wage survey information has been extended until Feb. 25. Remember only those that submit information will receive the results. It seems every year that someone wants the results that did not submit the information and I have to tell them they can't have it because they did not contribute. If I was to give it out to people that did not contribute no one would submit.

WWTA Online Training

If you have not yet taken a look at the WWTA online training program I would encourage you to, as no doubt you will be hiring new workers in the near future and it is a good method to get them productive earlier and safer. If you want an overview of the program go to the WWTA website at: <http://www.wwta.ab.ca/truss-training-online.html>

Did You Know?

I have had a couple of inquiries in the past month about truss uplift. There is some information on the WWTA website under the builders tab at:

<http://www.wwta.ab.ca/truss-uplift.html>