

A Decaying Confidence

The ill-defined benefits of pressure treated wood

By Gary van Bolderen

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“Should farm building designers and contractors continue to use pressure treated posts to support pole frame structures?”

This is a question I would not have asked myself only four months ago. What I have learned in the past four months suggests the farm building industry should investigate the waning confidence of using pressure treated wood products, as structural components in farm building design. The unavoidable, and seemingly unanswerable question is, “How long will pressure treated posts last, before they lose their structural integrity?”

This summer, (July 2021), one of our clients called to ask about two windows being jammed which could not be opened or closed correctly. Upon inspection it was observed that approx. 24’ of the building sidewall, near the window location, had settled approx. 2”. This caused the windows frames to be out of square and the windows to jamb. Upon further inspection it was discovered that three of the 6”x8” pressure treated posts, which supported the building roof truss system, of the pole frame building, had rotted completely. Further observations revealed a fourth post had also rotted.. (See the attached photo of the extent of the decay, taken at the site).

The damage to these structural posts was so complete that the owner was advised to not allow any people inside the building, until the posts were replaced. It was deemed to be unsafe for human occupancy. The owner immediately arranged for these posts to be replaced, fearing the collapse of the structure if repairs were not done.

The total rot, through the full cross section of the 6”x8” pressure treated post, was a real shock to me. Since working in the farm building construction industry since 1972, and having built literally hundreds of pole barns, *I have never been asked to replace a pressure treated post, until just four months ago. That is over 50 years, without a known failure.* You can imagine my surprise when I saw these decayed posts, which were only 12 years old. I repeat for emphasis, *“Only 12 years. How could that be?”* I am still in disbelief at what I saw in the totally rotted P.T. posts. It would be less surprising if this was observed in a much older building. Twelve years is a very short time. It is so short that I think it would be accurate to describe these as “temporary” buildings, if supporting structural posts only last 12 years.



6"x8" pressure treated posts completely rotted after 12 years. This was part of the sidewall posts of an indoor riding arena located in Caledon, Ontario. Photo was taken July 2021.

Fact: Two Engineers firms have put on hold specifying in ground application of pressure treated wood posts, until more information is available.

Fact: Three farm building contractors have decided to discontinue, entirely, the use of pressure treated posts as structural members. This effectively means they will not recommend building pole frame structures for their client.

This incident prompted me to wonder if there were other pole frame structures that had similar failures. Through my conversations with other contractors and engineers, in the farm building industry, I learned that other contractors have also experienced the rotting of pressure treated posts. I do not know the particulars of each occurrence. Whatever the reason, the fact remains, there have been some pressure treated posts that have rotted and had to be replaced. Not matter the reason, these failures did happen, and these failures are nurturing a growing lack of confidence, in the use of pressure treated posts in pole frame buildings, by owners and contractors.

The owners in these cases, are alarmed, as are the contractors and engineers, at realizing their buildings are not safe. They also have no option but to repair them, if, their buildings are to remain structurally safe.

From these conversations, I am starting to believe that these recent incidents of rotting posts, are only the tip of an iceberg. In all cases, the reported decay of the P.T. posts, involved only posts treated after the 2003 change in the treating process. This common denominator in the conversations I am hearing, about failed P.T. posts, suggest the expectations for the life span of treated wood has changed. Since 2003, when a new treating process was introduced, we are now beginning to see some actual in-the-field results. The older treating process has had actual decades of observable evidence for the farm building industry to make knowledgeable decisions on how to use these products. The newer process does not have the same legacy to support its value. I noticed that the AWPAs has revised its standards every year since 2000, through to 2021. This suggests that the AWPAs has made improvements with each revision. If that is the case, can it be assumed that the product produced in 2003 is not the same as the presumably improved product produced in 2021? Is there any difference in these products in the almost 20 years of use in the marketplace?

These recent failures are cause for concern. I am quite sure these posts met the treating industry specifications when they left the factory. The regulatory agencies must provide specifications that will produce products that perform to a defined minimum standard. *“Can the consumer have any confidence, that products meeting the treating specifications, will produce a product that meets the needs it is specified for?”* The Canadian Standards Association, (CSA), in Canada, it is a highly respected regulatory authority, setting the benchmarks on quality and safety. In the case of pressure treated wood, the CSA Committee or Task Group, should revisit this product, focussing on the predictable life span of the pressure treated wood products. This should be looked at immediately.

The American Wood Preservers Association, (AWPA), sets the standards in the United States, which greatly influences the Canadian standards. The AWPA has introduced a Use Category System to help users know how to use their products. It has specific UC schedules for many different applications, including “agricultural” structures. There are five Use Categories, with a sixth, for fire ratings. However, it should be noted, many contractors, building inspectors, engineers, and suppliers, accept the regulatory agency stamp of approval as the authority to use the product. They are builders, not researchers. The regulatory authorities are responsible for setting the standards. The construction industry is responsible to use the product as specified. *“If the product is used as specified, and it still fails, we should find out why? This should be investigated as soon as possible.”*

The old saying “An educated consumer, is your best customer”, applies to the proper use of pressure treated wood. I think we need to do a better job of education on P.T. products. Such knowledge will prevent future problems. The treating industry, I believe, must do a better job of educating the users of their product.

Fortunately, the decayed posts removed from my client’s barn still had the tag attached to the bottom of the posts, which indicated “ground contact”. Thanks to the use of plastic tags, we know it was the right product, as per the UC category system. But this is to digress. We have more urgent issues.

This is an industry wide issue about real posts rotting, of real barns being damaged, affecting real people’s businesses, and real questions about how, or if, to use pressure treated wood as a structural component of a pole frame building. These consumers, and contractors, do not want to have an academic discussion about specifications, chemical formulae, etc. That is the responsibility of those who set the treating standards.

The consumer needs information and answers. They need to know how long these P.T. products will last. Is the client's investment of millions of dollars going to last longer than 12 years? Can contractors still offer the pole frame structure as the best solution for their client's needs? Will engineers have the confidence in pressure treated wood to continue stamping the drawings? Will building inspectors approve pressure posts for building permits? Will the insurance industry insure pressure treated post frame buildings? These are critical questions, that need to be addressed. Those who are considering building new pole barns today, should have this information.....NOW. They need this information to make the correct decisions to invest in a new pole frame structure using pressure treated posts, or not.

How do we help potentially hundreds of owners, of pole frame structures, that may see their buildings fail because posts have totally decayed? These buildings would have to be repaired or torn down, because they are unsafe for human occupancy, if not repaired. I predict we will have increasing number of failures as the pressure treated posts installed a few years ago, continue to decay, in increasing numbers, year after year. How does the industry respond to such a crisis? Are there ways to mitigate the losses? The farm building industry deserves to know how long the pressure treated posts will last. So do the owners, who rely on the farm building industry to provide accurate information.

I have approached the treating industry for some information. They have not responded yet, but I have only been communicating with them in the last few weeks. I have been assured they will get back to me. If we can get every stakeholder to participate in searching for answers, we will make progress. I am looking forward to working with them to find some answers.

I talked to three retail lumber suppliers, who's salespersons informed me that all pressure treated products they sold were the same. This is not true. When I pointed out the different tags attached to the lumber, each salesperson was surprised. Almost all retail stores will supply products with individual tags labelled "ground contact" or "above ground". In the three lumber yards I visited, the inventory of pressure treated dimensional lumber (2"x4', 6,8,10 's) was totally for "above ground". The squared posts (4"x4" or larger) were all tagged as "ground contact". Most posts larger than 4"x4" were special order. Most farm building contractors procure their products from lumber suppliers who know the farm building industry and are knowledgeable about how the product is used. This is not always the case with all suppliers. I believe it is in the public interest to educate the industry, and the public, about the correct use of pressure treated products.

The seriousness of decaying of pressure posts should instigate an immediate investigation by all stakeholders in the farm building industry. I believe there may be a flood of failures in the next 5 to 10 years. I believe that before any contractor proceeds with building a new pole frame structure they should consider all the facts about the life span of pressure treated posts. I believe the life span is very limited and therefore has the potential to be very costly for the owners in repairs after 10 or 15 years. I will not promote my opinions as anything other than opinions. I do not express any professional status, qualifications or knowledge about the treating industry or its processes.

But I have seen the newer pressure treated post decay in only 12 years. I have never replaced a pressure treated post in fifty years before that. Now, I have heard about several failures, each one was treated with the newer process. I have never had anyone from the treating industry tell me how long a pressure

treated post will last. It would be nice if the treating industry could answer that question, without a lot of caveats.

But like Yogi Berra, the Hall of Fame, former baseball catcher and manager said. *"It is tough to make predictions, especially about the future"*. I agree, but my observations suggest to me that there is a serious lack of information about the life span of pressure treated posts. We need to know more. Consider that a contractor has the approval of the engineer, the building officials, the suppliers, the treating manufactures, and the blessings of recognized regulators to be able to use pressure treated wood, and after 12 years it has failed. There is something wrong if the all the "experts" agree it is the right product to use and still we find it rotting. It is time to have another look at how this product should be used, where it should be used, and how long it can be depended upon to perform up to specification.

As a contractor I have always tried to help my clients. The only thing a businessperson has, is their reputation. Without the trust between a contractor and the client, there is no business, no future, no successful construction industry. My client trusted me when I helped him solve his building needs. I valued that trust then, and I still value that today, 12 years after completing his building project. He deserves answers. He has every right to still trust me. I will continue to earn his trust by finding out why the posts rotted so quickly and what he is to expect in terms of the lifespan of his building. I am looking for help. With this recent issue, my client asked me two questions. 1. "Is my building safe to use?" and 2. "How long will the posts last in my building?" I want to find the answers, because right now I do not know the answers, which my client has every right to expect me to answer. I need your help in finding answers. I am a builder, not a researcher, technician, engineer, or specifier of product use. I believe the co-operation of all stakeholders will find the answers.

I would like to see a group of stakeholders get together to discuss this issue soon. If you are interested in such a gathering, please call me. Hopefully we can work together to better serve our clients and our industry. My wish is that these incidents of post decay are an aberration, isolated cases, not a forecaster of a wave of hundreds of buildings that are unsafe unless repaired.

If you know of any pressure treated posts that have failed, please let me know. I am interested in finding out the scope of this problem. Thanks for your help.

Remember to be happy, it is a good way to live.

Gary van Bolderen

Retired Farm Building Contractor