



Return to Work Workshop

As part of Bill 41, the provincial government made amendments to the Workers Compensation Act that affect Return to Work. As of January 1, 2024, employers and workers have a legal duty to cooperate with each other and with WorkSafeBC in a worker's timely and safe Return to Work (RTW) following an injury, and certain employers will have an obligation to return injured workers to work in specific circumstances.

In an effort to help address the RTW issues wood products manufacturing operations may be having with their RTW programs, you are invited to attend a hands-on Return to Work (RTW) workshop. This informative workshop will be hosted by Elise Kobylanski and Teresa Cheung, RTW Client Services Managers with WorkSafeBC. The workshop will discuss the challenges with RTW programs in sawmill and pellet operations and help find solutions to implement RTW strategies in these settings. Workshop details are still being finalised and will be shared soon.



**Workshop: Proposed Dates - April 22 or 23, 2024
Prince George, BC**

To attend the workshop, please click the [registration link](#).

Using QR Codes for Quick Access to Safety Materials

On January 21, Chris Cloney from Dust Safety Science hosted a podcast featuring Bill Laternus, Senior Safety Advisor of manufacturing at BC Forest Safety Council. In the podcast, Bill discussed the use of QR codes in industrial applications and safety.

Bill spoke about how BCFSC uses QR codes to provide people with easy access resources by simply using their phone's camera to access information from the BCFSC website. Bill noted his team has developed a specific QR Code sheet that includes linkable codes to information on combustible dust and other key safety topics. Take a look for yourself and scan the QR Code to access the [MAG/WPAC Communication/QR code sheet](#).



MAG/WPAC QR Code

And scan the podcast QR Code Listen to the podcast: [DSS250: The Use of QR Codes in Industrial Applications and Safety with Bill Laternus](#)



Podcast QR Code

Dr. Chris Cloney, PEng, Managing Director and Lead Researcher at DustEx Research Ltd., has partnered with BCFSC on two WorkSafeBC research grants, "Innovation at Work".

Tolko Tour

Last November, MAG members held their fourth quarterly meeting at Tolko in Williams Lake, BC and invited MAG auditor Nicole Brandson to attend as their guest. As part of the meeting's agenda, the group visited the sawmill operation to observe single-point lockout in the sawmill. They also observed how the sawmill's safety measures were being implemented in day-to-day operations and how sawmill workers were incorporating safety into their daily roles.

A big thank you goes out to Tolko for sharing their on-site safety initiatives with the group and providing us with a behind-the-scenes look at their lumber facility.



New Developments in Research Project Focussing on Inherently Safer Design (ISD) in Mobile Equipment (ME) Risk Reduction in BC Sawmills and Warehouse Operations

Mobile equipment (ME) in manufacturing facilities is a significant concern, with the risk of struck-by incidents causing injuries and fatalities, as well as the prevalence of musculoskeletal injuries (MSIs) to operators. This past year, progress has been made on a new research project that has been undertaken to explore how to reduce these hazards using inherently safer design (ISD). This work has been completed by a team of industry experts and academic researchers as part of the Applied Innovation research grant from WorkSafeBC. Read more about the project background in our [June 2023 Issue of Forest Safety News](#).

Highlights of the research to date include a series of innovative and collaborative workshops to evaluate ME hazards in October 2023. The project team successfully coordinated multi-disciplinary, cross-industry workshops focussing on integrating ISD to reduce mobile equipment musculoskeletal injuries (MSI) and mobile equipment-pedestrian interface (ME-PI) incidents. These workshops involved approximately 20 participants and included supervisors, managers, safety directors and coordinators, and representatives from equipment suppliers.

Numerous ISD options were successfully identified, and participants placed a key focus on discussing and exploring how ISD principles could be considered. Various types of active and passive engineered equipment were also shared across the workshop attendees (which will be summarised in the final project report).

Preliminary findings of the workshops include:

- The need to increase the awareness of the hierarchy of controls,
- The need to formalize management of change (MOC) processes,
- Safety culture, as well as equipment and facilities procurement, are significant drivers for ME risk reduction, and

- Communication resources and tools are needed as part of knowledge transfer and exchange (KTE) for this research project.

Workshop attendees reported that the workshops were productive, they provided the opportunity for peer-to-peer learning, and attendees identified key takeaways that they can immediately consider in their operations; additional workshop outcomes will be detailed in the final report.

This workshop was an important research milestone for data collection. Next steps include the development of tools and resources for incorporating ISD into safety management systems (SMS) and identify opportunities for improvement with respect to senior leadership, management of change, facility and equipment procurement, incident investigation, risk assessment and business cases.

ISD Questionnaire

Management of Change (MOC)

- Are engineered controls generally regarded as preferred over administrative/procedural controls?
- Is the hierarchy of controls and ISD options considered during management of change?
- Are operators involved or consulted when work processes are developed, when new mobile equipment is introduced, new materials being handled, facility changes (layout, additional changes, temporary building)?
- How are changes being handled with respect to seasonality, inventory, shipping changes?

OBEXRISK

Integrating Inherently Safer Design (ISD) for Mobile Equipment Risk Reduction

UNRESTRICTED 14

ISD Questionnaire

Equipment Procurement

- This is one of the areas identified as a priority for further research – how can we help operations more effectively select ISD equipment?
- What is the lifecycle of the forklift? Who is leasing, who is buying?
- What innovations and technology changes are occurring with equipment to help with MSIs and MEPI? How can the awareness of this be raised? How does an industry or region encourage equipment manufacturers to innovate?

OBEXRISK

Integrating Inherently Safer Design (ISD) for Mobile Equipment Risk Reduction

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Continued on page 20...

Continued from page 19...

The ISD research project will be completed in 2024 and promises to provide new perspectives on how facilities, processes and equipment can be changed to provide additional layers of protection for reducing mobile equipment risk.

The project research team is eagerly completing the remaining of the research project milestones. If you are interested in learning the outcomes of the research and how it impacts your facility, contact Kayleigh Rayner Brown, MASc, P.Eng. (Principal Investigator, kayleigh@obexrisk.com).

Ms. Kayleigh Rayner Brown, MASc, P.Eng., is Director of Obex Risk Ltd. in Halifax, Nova Scotia. She holds a Master of Applied Science (Dalhousie University) in chemical engineering, specializing in process safety, ISD, and hazard analysis. Kayleigh has played an integral role in enhancing process safety in wood pellet production as project technical lead in two

previously funded WorkSafeBC Innovation at Work projects. Kayleigh has previous key experience in hazard analysis workshop facilitation, ISD research, stakeholder engagement, and project management.

Dr. Paul Amyotte, P.Eng. a Professor of Chemical Engineering in the Department of Process Engineering and Applied Science at Dalhousie University. Dr. Amyotte is a recognized expert in the field of ISD and has an extensive record of authorship in ISD, process safety, and dust explosion research.

Mr. Bill Laturnus is a Senior Safety Advisor, Manufacturing at the British Columbia Forest Safety Council (BCFSC). Bill has extensive experience in sawmill operations, and as a proponent of ISD, supports the incorporation of practical applications of ISD at sawmill worksites. Bill has recently conducted key safety activities focusing on risk reduction of the mobile equipment-pedestrian interface with the Manufacturing Advisory Group (MAG). Bill also has 10 years of experience auditing SMSs in forest products manufacturing.

Ms. Jacqueline Morrison Morrison is a manager in OHS Consultation & Education Services at WorkSafeBC. Having worked in warehousing and transportation for many years and having served on several workplace road safety initiatives, she has a special interest in addressing the risk of mobile equipment and pedestrian struck-bys. The most effective way to control workplace risk is through safer design to eliminate, isolate or reduce the risk to workers. She is supporting the project by identifying participants for the workshops, sharing subject matter expertise and will support the communication of any learnings to industry, employers, and workers on how to control this risk more effectively through inherently safer design.

The project team gratefully acknowledges funding from WorkSafeBC under an Applied Innovation grant for the project "Integrating Inherently Safer Design for Mobile Equipment Risk Reduction." The views, findings, opinions, and conclusions expressed herein do not represent the views of WorkSafeBC. 🇩🇪

Drum Dryers Symposium - Developing Best Practices for Safer Operations



Drum dryers present the risk of fires and explosions due to combustible dust, as well as conditions that can lead to the generation and accumulation of combustible gas. [Join us](#) for this online symposium as we explore best practices for safer operations of drum dryers.

The Wood Pellet Association of Canada is hosting the event in collaboration with the BC Forest Safety Council and media sponsor, Canadian Biomass. The event will be held Thursday, April 4, 2024, from 9:00 - 11:00am Pacific Time.

Across the Canadian wood pellet industry, both drum dryers and belt dryers are widely used, as well in other sectors, including panel board (oriented strand board (OSB), medium

density fibreboard (MDF)), grain, and minerals. There have been past incidents involving drum dryers in the wood pellet sector from which we can all learn. The symposium will include presentations from producers and subject matter experts on learnings and experiences, the current state of and new approaches to drum dryer safety.

Previously, our industry successfully completed a collaborative initiative on [belt dryer safety](#). Following on the success of that model, an outcome of the drum dryer symposium will be a proposed drum dryer working group. This working group will collaboratively take a closer look at trends, identify opportunities for improvement, and formulate recommendations. Resources will be created and shared to help support the continuous improvement of dryers and enhancement of the sector's safety culture.

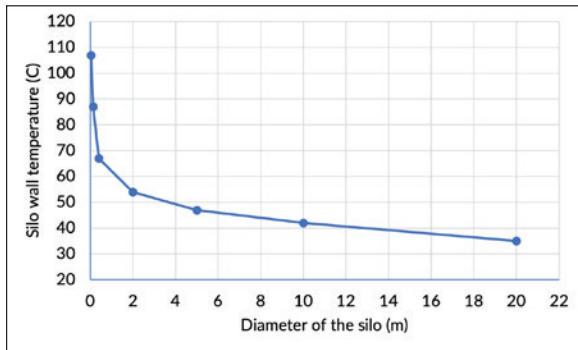
We encourage personnel at wood pellet facilities that operate drum dryers to attend the event. This includes managers, supervisors, maintenance staff, safety coordinators and specialists, and engineers. Individuals who work in allied sectors, including suppliers of drying and heating equipment, insurance, and consultants, should also participate. Other industries that operate drum dryers are also welcome to attend.

Register for the symposium [here](#)!

For more information contact me at gord@pellet.org. 🇩🇪

Managing Silo Size and Humidity Key to Controlling Self-heating in Pellets

By Dr. Shahab Sokhansanj, Dr. Fahimeh Yazdan Panah and Dr. Jun Sian Lee Biomass & Bioenergy Research Group, Chemical & Biological Engineering, University of British Columbia

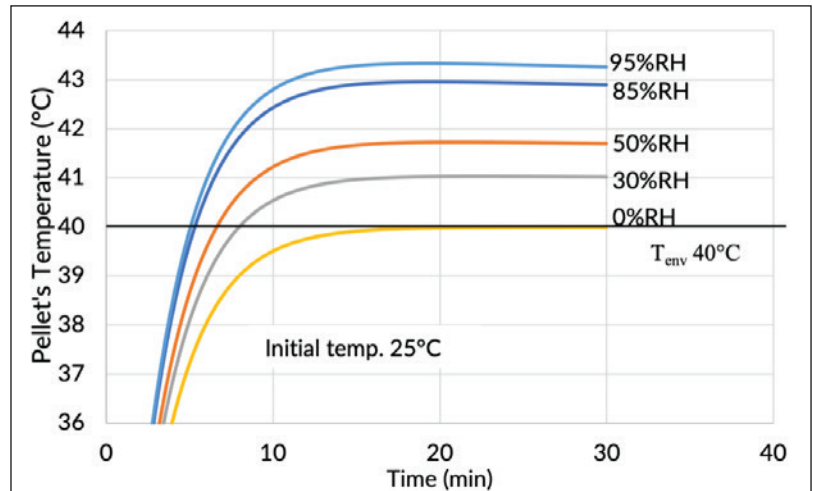


Very wide silos (large diameter) are prone to self-heat and combustion at a lower wall temperature. The curve in this graph can be used as a guide for safe storage. Having the silo wall vs. diameter of the silo above the curve will not be safe; the points below the curve are safe.

Self-heating is one of the leading causes of fire and explosion in storing wood pellets. According to the [2021 Combustible Dust Incident Report](#), five fire and explosion events occurred in wood storage facilities in 2021, and most recently, in 2023, self-heating led to a fire in Japan's Yonago biomass-fired power generation plant.

These types of incidents are believed to be initiated by temperature rise caused by moisture adsorption and condensation. The temperature increase is then accelerated when an oxidizable material, such as woody biomass, reacts to produce heat, which accumulates to a temperature of ignition and combustion. Self-heating is dangerous because when it is not controlled, fire and explosion can occur in biomass storage facilities and cause damage to health and property.

Over the past 20 years, researchers at the Biomass & Bioenergy Research Group (BBRG) at the University of British Columbia have carried out self-heating research, in parallel with off-gassing research. The research was funded by the Natural Sciences and Engineering Research Council of Canada (NSERC) and the members of the Wood Pellet Association of Canada (WPAC). Based on our research, we have developed six key steps pellet producers can take to prevent self-heating events:



Simulated temperature rise of wood pellets due to increase in relative humidity of air inside the silo set at 0, 30, 50, 85%, and 95% and at a constant temperature of 40°C. Source Dr. Jun Sian Lee UBC 2020.

- 1. Keep the pellets dry** – but not too dry. Dry pellets adsorb more moisture than moist pellets. We recommend a moisture content of 7-8%.
- 2. Do not store warm pellets in temperatures hotter than 35°C.** Warm pellets reach self-heating conditions substantially faster than cooler pellets.
- 3. Keep the pellets cool** using ventilation but limit humid air as it can carry additional moisture into the silo. A higher air flow rate for a short time is preferred. However, if self-heating is already present, the introduction of air to the silo must be ceased immediately.
- 4. Minimize loading broken and dust into the silo.** Field experiences have shown that filling a silo at stages may create dense layers along the column of pellets inside a tall silo.
- 5. Silo size is important.** Generally, more slender structures dissipate heat faster than wide storage structures. Concrete silos come in 5, 7, 9 m diameter. Steel grain bins can be up to 18 m. Recommended silo diameter is 10 m or less.
- 6. Screen pellets for reactivity** using an instrument such as a Thermal Activity Monitor (TAM) which is available in BBRG's lab at UBC. The unique instrument is used to determine the reactivity of pellets and to screen pellets for off-gassing.

Self-heating is not limited to just the wood pellet sector. This research can also provide important information for other products such as coal and agricultural biomass like straw and grass.

To find out more about our work, contact Shahab Sokhansanj via email at Shahab.Sokhansanj@ubc.ca.

WPAC's Continued Commitment to Safety Reflected in 2024 WPAC Safety Committee Workplan

By Julie Griffiths



The Wood Pellet Association of Canada (WPAC) places the highest priority on the health & safety of employees and treating forest workers fairly. It's in our sustainability statement and in our 2024 Safety Committee Workplan. It is also reflected in our common understanding that the best way to achieve our safety goals is through a focus on strategic initiatives, effective communications, and sharing new developments and learnings in our industry for both continuous improvement and overcoming challenges.

Since 2014, WPAC's Safety Committee has set out an annual workplan to undertake strategic initiatives that reflect the needs of members and emerging trends. This workplan is responsive, as well as proactive, to enhance the safety of the sector and continue to foster a strong safety culture. Last year was an outstanding year for the pellet sector and advancing safety, made possible through collaboration and partnerships. Achievements and outcomes included:

- Launch of [Plant Operator Training Program](#) in May 2023. This is completed with support of a WorkSafeBC Small Initiatives grant.

- Completion of [process safety management \(PSM\) research project](#) in collaboration with Dalhousie University, BC Forest Safety Council (BCFSC), Dust Safety Science, and Obex Risk Ltd, through a WorkSafeBC grant. This project expands on the Critical Control Management project.
- Conducted a [bow tie analysis on combustible gas in drum dryers](#) in collaboration with Premium Pellet and created a summary report outlining how combustible gas can form and key actions to prevent this from occurring.
- Hosted the [Wood Pellet and Bioenergy Safety Summit](#) in Prince George on Nov. 15-16, which included a WorkSafeBC Human Factors and Process Industries workshop.
- Provided a [safety workshop](#) before the WPAC AGM in Ottawa on Sept. 18, 2023, led by Dr. Paul Amyotte, P.Eng.
- Co-hosted two other [Human Factors and Process Industries workshops](#) with WorkSafeBC in Kelowna and Prince George.

This year's outlook

WPAC members continue to provide their time and expertise to collaborate as a collective industry and undertake an ambitious Safety Committee Workplan for 2024. Key initiatives include:

Process Safety Management (PSM): Build on the PSM research project to enhance the adoption of process safety elements through a proposed, sector-wide PSM implementation initiative. There is a significant business case for PSM, and this proactive approach positions the industry well in the evolving landscape of PSM regulations.

Mobile Equipment Safety: Conduct a bow tie analysis customized for wood pellet operations to improve safety of workers, including pedestrian awareness, site layout, equipment and procedures.

Improve Drum Dryer Safety: Participate in a symposium and form a working group to improve rotary drum dryer safety.

Respond to New WorkSafeBC Combustible Dust Regulations: Provide tools and action plans to identify and close gaps to align with new WorkSafeBC regulations. This also supports operations outside BC should regulations change in other jurisdictions.

Host Industry-wide Safety Summit: Timeline, agenda and speakers to be confirmed.

Read the full 2024 WPAC Safety Committee Workplan [here](#).

WPAC's safety committee works in close cooperation with WorkSafeBC and the BCFSC. The committee welcomes new members. If you are interested, please contact Gord Murray by phone at (250) 837-8821 or email gord@pellet.org. 