



WPAC Safety Huddle

WORKING AT HEIGHTS BOW TIE ANALYSIS



Kayleigh Rayner Brown, MAsc, P.Eng,
Obex Risk Ltd.
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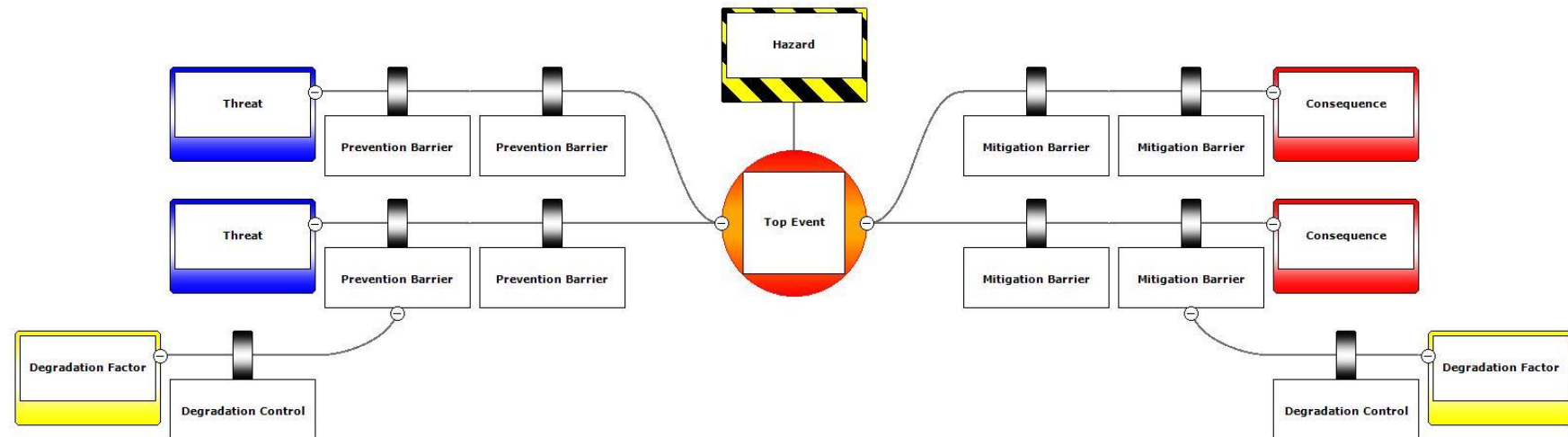
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OUTLINE

- Welcome
- Project Introduction and Background
- Bow Tie Analysis Results and Discussion
- Literature Review and Recommendations
- Acknowledgements
- Closing Remarks

PROJECT INTRODUCTION AND BACKGROUND

- Wood products manufacturing involves working at heights (WAH) activities.
- WAH presents the risk of a fall from heights (FFH), which can lead to injuries, fatalities, and business interruption.
- Project Objective: Conduct bow tie analysis (BTA) to evaluate WAH and controls.
- Identify gaps and support the development of WAH safety resources for industry.

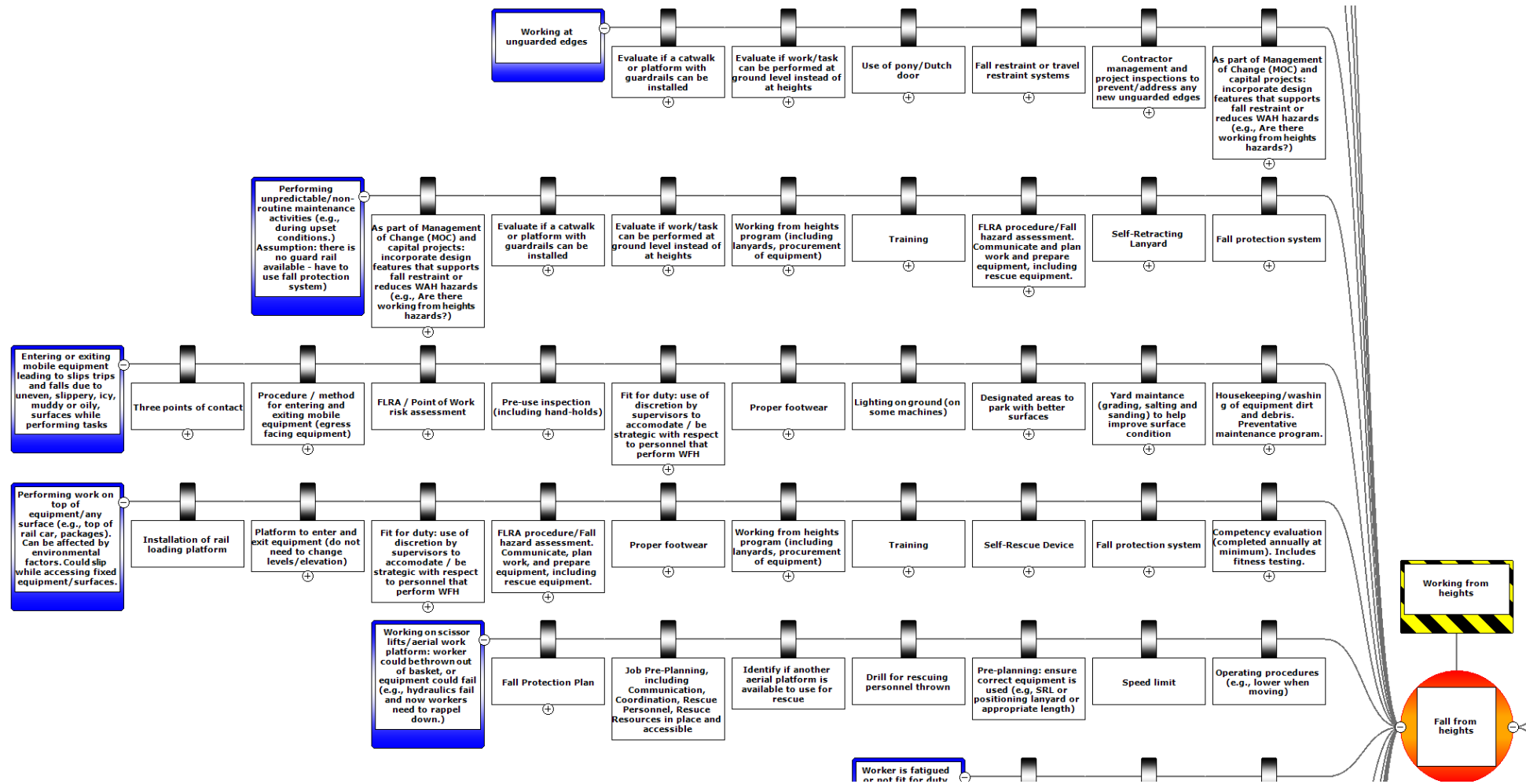


BOW TIE ANALYSIS WORKSHOP

- In-person workshop in Prince George; eight diverse subject matter experts, including health and safety resources, supervisors, and managers.
- Scope: Sawmill and wood pellet production. No height limit set. Priority scenarios were high frequency and high potential for negative outcomes.



BOW TIE ANALYSIS RESULTS – EXCERPT



OVERCOMING CHALLENGES

- Address management system gaps
- Many WAH controls are administrative; consider how other types of controls can be used (engineering, inherently safer design (ISD) in job design or work area)
- Enhance safety culture and hazard awareness
- Improve Worker and Supervisor training and additional support (for inspections of equipment and documentation)



RESCUE PLAN AND JOB PRE-PLANNING

- Rescue plan and pre-planning was identified as an important aspect of WAH risk management - critical and complex control
- Potential rescue device options:
 - [3M DBI-SALA Rollgliss device example and details](#)
 - For maintenance personnel: [Petzl](#)



[Credit](#)

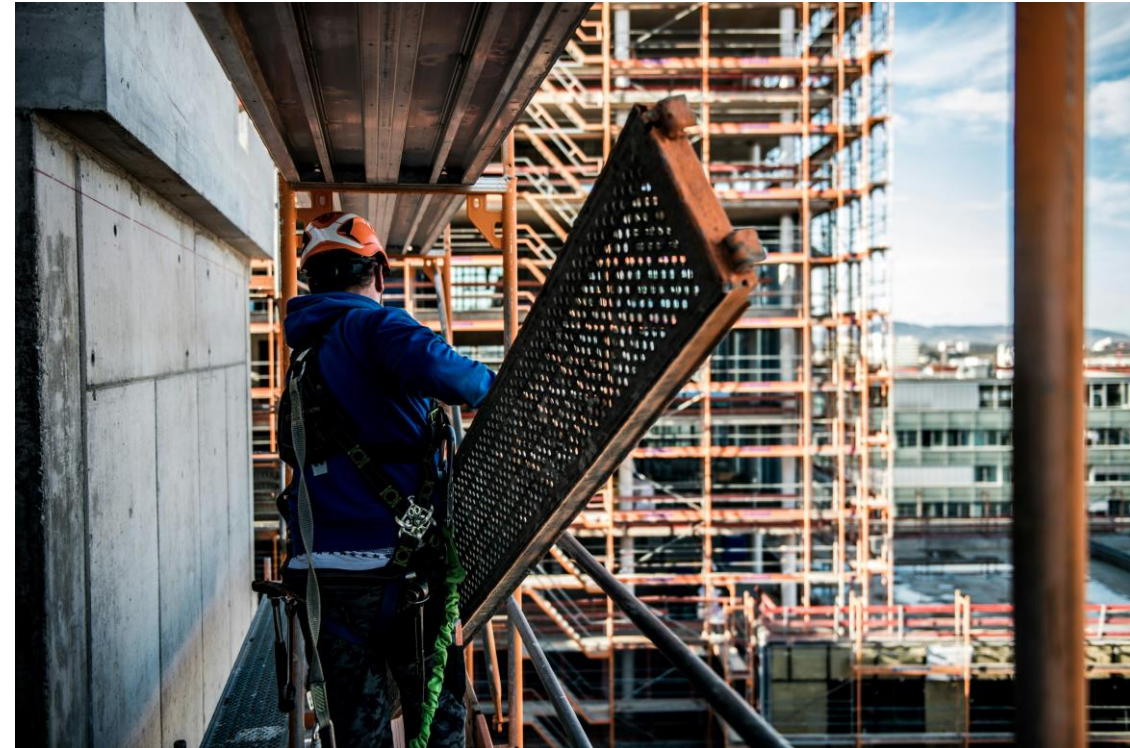
RECOMMENDATIONS

- With respect to lanyards, fall protection systems, rescue devices:
 - Complete routine inspections
 - Ensure procurement process includes considerations of the correct tools/equipment for specific job types. Ensure procurement process is adequate and knowledgeable of equipment to be ordered.
 - Add description of system type and fall distance calculation to field-level risk assessment
- Define training for rescue response personnel
- Ensure rescue plan is in place, feasible, roles and responsibilities are clear, and that rescue equipment is available
- Consider how WAH could be eliminated WAH by changing the job or work area design (could include catwalks, platforms with guardrails)



LITERATURE REVIEW: LEARNING FROM OTHER INDUSTRIES

- Construction industry
- Causes of falls from height (Zermane et al., 2021):
 - Failure to wear PPE
 - Lack of supervision and leadership; need management commitment to cultivate strong safety culture
 - Deficiencies in work standards or following them correctly
- Areas of focus for improvement (Wong et al., 2016 and Firdaus and Erwandi, 2023):
 - Job planning, communication across project and activity stakeholders, and crew resource management
- Safety outreach programs to raise awareness
- Training programs to improve knowledge and skills
- Supervision at work locations
- Management support for safety management programs and adherence



LEARN MORE

- Summary Report
- Full bow tie analysis
- Key bow tie analysis results
- Discussion of critical controls, degradation factors and controls, and opportunities for improvement

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British Columbia Forest Safety Council (BCFSC)
Overview Report

Project Name

Bow Tie Analysis of Working at Heights in Wood Products Manufacturing

Prepared By:

Kayleigh Rayner Brown, MAsC, P.Eng.

Reviewed By:

B. Laturnus

Obex Risk Ltd.
620 Nine Mile Drive, Suite 208
Bedford, NS, B4A 0H4
Canada
T: 782-640-9555
www.obexrisk.com

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