

Three-year Service Plan: 2024 - 2026



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BC Association for Crane Safety

BC Crane Safety is the WorkSafeBC-designated provincial certification and licensing authority and has been in existence since 2005. BC Crane Safety sets and maintains competency-based assessment standards and protocols for six levels of certification and for 11 crane types.

We work with industries, governments and health and safety authorities within BC, across Canada and internationally to identify trends and “next practices” that impact all our stakeholders including industries that benefit from safe, effective crane operations.

Our key collaboration partner is WorkSafeBC. The main WorkSafeBC team we work to influence health and safety is the Crane and Mobile Equipment Inspection Team which was created in 2008 with a primary focus on safe erection, inspection, and operation of tower cranes in B.C. WorkSafeBC Prevention Officers inspect cranes and their operations for worker and worksite safety.

The health and safety objective of BC Crane Safety is to identify and eliminate, mitigate, or control specific crane equipment hazards and unsafe work practices that have the potential to cause serious injury, death, or catastrophic equipment failure. We work with industry stakeholders to promote consistent understanding of tower crane, mobile crane, boom trucks, rigging and below the hook lifting devices, assembly/disassembly, operation, inspection, and maintenance hazards to comply with the BC Occupational Health and Safety Regulation.

BC Crane Safety's Service Plan Overview

Strategic Vision

Safe operators, equipment and rigging practices for all industries in British Columbia.

Strategic Goals

To reduce or eliminate serious injuries and deaths related to crane incidents by improving the safety of the operator, crane equipment, load and rigging.

What We Do

Maintain BC's World-class Crane Operator Certification Regime

We collaborate with industry and other stakeholders to identify and promote industry practices that support safe and effective crane and hoisting operations in BC through ongoing communication and consultations. In addition to ongoing collaboration with all our stakeholders, we provide important opportunities for larger-scale stakeholder engagement.

Set and Maintain Crane Operator Competency Standards

We set and maintain competency-based assessment standards and protocols for six levels of certification and for 11 crane types. Based on these standards, we oversee a third-party competency-based certification system that has become a model for jurisdictions around the world.

Promote Accident-free Crane Operations Throughout British Columbia

Our most important priority is, and continues to be, the maintenance of the crane operator qualification system to address the needs of all operators and employers in the province.

Oversight of this system is the key to achieving safe and effective crane, hoisting, and rigging operations throughout BC.





We Serve Our Stakeholders

BC Crane Safety's key objective is to provide service to our stakeholders, primarily within the Province of BC, and serve stakeholders nationally and internationally. Our service focuses on the certification of crane operators, and the identification, development and implementation of industry standards, safe work practices and industry-focused resources.

We engage, partner, and collaborate with:

- Owners
- Employers
- Supervisors
- Operators
- Manufacturers
- Regulators
- Municipalities

Serving Additional Stakeholders: Attracting Prospective Entry-level Operators

Our ongoing efforts to promote crane operations as an attractive profession include the development of communication materials and tools to help new entrants navigate the certification system and support the timely achievement of their chosen credential. We continue to update and expand these supports.

BC Crane Safety works to develop strategies to increase the attractiveness of crane operations to encourage more workforce diversity along with supply.

We continue to expand our reach to other jurisdictions, nationally and internationally, to compare and harmonize certification standards, support robust standards across jurisdictions and support labour mobility. We engage with industry representatives through related organizations:

Supporting Labour Mobility

Through mutual recognition agreements, BC crane operators with credentials from other Canadian provinces and territories and some US states can work in British Columbia based on recognition of the credential they earned in their home jurisdiction - and it works both ways. We use an application process to recognize certain valid credentials from outside of BC.

BC Crane Safety's Crane Operator Certification program measures candidates' demonstrated knowledge, skills, abilities, and attitudes against the foundational standards of competency, and the practical assessment requires that operators demonstrate that they have achieved at least these essential competencies for safe crane operation.

The Certification program is also capable of recognizing competencies acquired through non-academic or informal channels, such as training in similar fields and/or work experience. This ability to assess and recognize the outcomes of prior learning is of growing importance across various sectors, especially in times of labour shortages.

- International Standards Organization (ISO)
- Standards Council of Canada (SCC)
- Canadian Standards Association (CSA)
- Occupational Safety and Health Administration (OSHA)

- European Association for Abnormal Road Transport and Mobile Crane (ESTA)
- European Crane Operator License (ECOL)
- Construction Plant Hire Association (UK)
- SOLAS (Ireland)
- Certifying bodies in individual EU member states

Our Core Activities

Many of our activities are ongoing, including:

- Delivering administrative services for the crane industry, including operator logbooks.
- Maintaining a load chart information database and question bank for the assessment process.
- Ongoing quality assurance of the assessment process.
- Updating and maintaining the standards and theory exam questions.
- Accommodating operators from other jurisdictions and facilitating the Out of Jurisdiction (OOJ) process in compliance with the Agreement on Internal Trade (AIT).
- Maintaining a crane operator database and operator/employer registry.
- Ongoing assessment delivery, development, and evaluation.

WorkSafeBC's Occupational Health and Safety Regulation (OHSR 14.34. 1)

Operator Certification requires all crane operators to have a valid operator's certificate. Crane operators must be qualified and competent on the specific equipment they use. Being qualified means an operator knows the work, the hazards involved, and how to control the hazards.

- This knowledge can come through education, training, experience, or a combination.
- Being qualified also means an operator has been instructed in how to use the specific equipment.
- Being competent means an operator has demonstrated how to safely operate, inspect, and maintain a specific machine.



BC Crane Safety's Service Plan Principles

BC Crane Safety's Three-year Service Plan's strength is that it is based on principles of common sense, stakeholder involvement and partnerships.

BC Crane Safety Service Plan is Common Sense

The Service Plan is built on the principle that safety solutions should be shared throughout the crane industry, without “reinventing the wheel”, so the greatest number of partners can benefit from previous experience, current research and development. This means:

- Problems and issues will be chosen based on risk and impact analysis. There are many competing problems and issues that need solutions. The BC Crane Safety Service Plan will focus primarily on those with the highest risks, severity and frequency.
- We will choose or recommend solutions that can be implemented quickly and will have a significant impact on incident reduction. Solutions, tools, and projects will focus on the safety of the crane operator, crane equipment, loads, and rigging. It must be recognized by our strategic partners that these can be implemented over the short and long-term.
- Although the primary focus is to provide practical answers that can be implemented quickly and efficiently to effect change as soon as possible, we will always keep in mind a view to create sustainable solutions.

The bottom line: whatever is done has to make sense to the crane community and industry stakeholders.

BC Crane safety Service Plan is Stakeholder-Based

The BC Crane Safety Service Plan will go beyond the individual workplaces and work with stakeholders in any affected industry. Crane incidents occur in every provincial industry and employers and workers all feel the loss at some level directly or indirectly. A range of issues, from safely picking a load to operator competency, need to be discussed and workable solutions need to be found, shared, and used throughout the province. With involved stakeholders in any affected industry, crane solutions can be created and implemented at the stakeholder level.



BC Crane's Service Plan Employs Partnerships.

- Employers, workers, labour organizations
- Apprenticeship bodies (STBC)
- Industry Associations
- Private sector organizations

To fully integrate the Service Plan throughout the province, the Crane Service Plan (through WorkSafeBC and BC Crane Safety) will involve community partners, including employers and labour, equipment manufacturers, equipment rental organizations, owners, and operators.

Service Plan Objectives

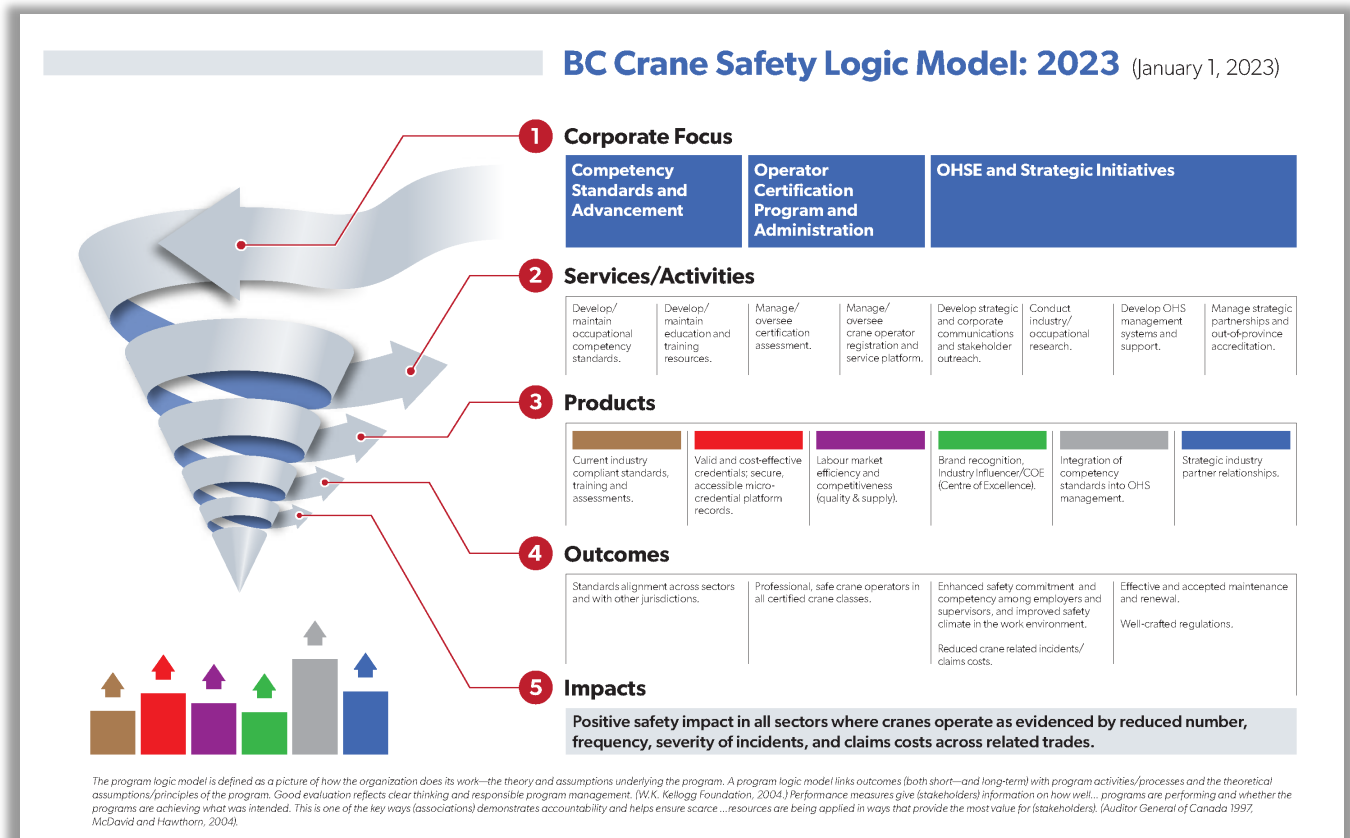
1. Motivate all parties involved in tower cranes, mobile cranes and boom trucks to use risk/hazard assessment tools that identify, assess and communicate machine hazard control measures at every stage of use.
2. Promote communication among crane-related workers, crane operators, supervisors, and employers/contractors, so they all understand the risks, participate in the assessment and controls for those risks, and are trained in tower crane, mobile crane, or boom truck safe operations.
3. Use a data-driven approach to identify industry risks, support the initiative deliverables, and measure sustained compliance.
4. Monitor the effectiveness of BC Crane Safety initiatives to identify, evaluate and report on the impact of the work conducted to our stakeholders.

BC Crane Safety Logic Model

BC Crane Safety's logic model framework is designed as a cone, illustrating how the Association's **Corporate Focus** is used to define where we expend our time, efforts and resources into the focused **Services and Activities** benefiting our industry stakeholders.

These Services and Activities include:

- The development and implementation of basic, agreed-upon safety standards for all crane types covered by Occupational Health and Safety Regulations.
- The development of apprenticeship programs for applicable crane types, sharing common core competencies to support clear career paths for new entrants.
- Ensuring the availability and accessibility of the program to all levels and types of industry.
- Completion and delivery of educational and training resources.
- Accommodation of third-party provision of technical theory and practical assessment.
- Up-to-date, psychometrically sound examination materials and exam banks.



What is a Logic Model?

Logic models can assist in program evaluation by providing *a picture of how the program is intended to work*. It identifies the program's main components and how they should relate to one another. Logic models include *process* and *outcome* components.

Process Components of Model	Examples
<i>Inputs</i> (resources)	Funding, staff, materials
<i>Activities</i> (program events or strategies)	Webinars held, evaluations made, help calls taken,
<i>Outputs</i> (products of activities)	Number of persons tested, quality of training

Logic Models are Useful:

- To build understanding and clarity about the program
- To identify resources needed for the program
- To identify the sequencing of activities that should be implemented
- To serve as a basis for program evaluation

Logic models are a good tool to help focus an evaluation to determine what to measure and what areas of the program might be most in need of evaluation. Logic models can be developed to depict how an entire program operates (i.e., global) or focus more closely on a component or specific activity (i.e., nested).

Adapted from: Identifying the components of a logic model - centers for disease ... (n.d.).
<https://www.cdc.gov/std/Program/pupestd/Components%20of%20a%20Logic%20Model.pdf>



Strategic Deliverables and Timelines

Activities	Details
Mid–Q4 2023	<ul style="list-style-type: none">Map out initiatives supporting 2024 Service Plan with WorkSafeBC Prevention and Skilled Trades BC
Q1–Q4 2024	<ul style="list-style-type: none">Implement policy requirements to support recertification with Fulford Certification and WorkSafeBC
Q1–Q4 2025	<ul style="list-style-type: none">In partnership with WorkSafeBC, develop and deliver a Crane Industry Safety Awareness Conference to promote recertification
Q1 2026	<ul style="list-style-type: none">Implement final phases of recertification program



How BC Crane Safety's Level Up Service Plan Will Work:

A Project Management Model

All issues, initiatives, programs, and projects will be identified and prioritized based on two measurement factors:

- Risk analysis - Tower crane and other crane incidents with the highest risks and frequency of occurrence
- Impact analysis - Crane solutions that can be implemented quickly and will have a significant impact on incident reduction.

To be most effective, the Crane Service Plan must be focused and systematic. As industry, associations, crane operators or others raise issues, concerns, and problems, crane partners can expect to form individual projects to address specific problems or issues. This will include:

- Creating project teams with appropriate partner organizations to motivate buy-in and ensure the viability of project implementation. These teams will also ensure that the Service Plan is relevant to a wide range of industries, crane types, industry issues and hazards.
- Conducting systematic reviews to understand the extent (severity and frequency) and impact (loss in dollars) of the problems
- Developing sound project or Service Plans to ensure overall project success
- Conducting cost-benefit analyses of completed projects (injury rates, claims costs, etc.).

Level Up Service Plan Goals and Objectives

What are the Next Steps?

Goals	Objectives	Lead Partners
A. Partner with key organizations and companies on recertification initiative	1. Crane operator recertification program in place	WorkSafeBC, Board Members, Fulford Certification
	2. Attain 17024 Accreditation from CSA	Fulford Certification

Crane Operator Certification Scheme Updating – BC Crane Safety

BC Crane Safety has been progressing towards implementation of an updated certification scheme to include a recertification component and support the Association in becoming eligible to attain ISO 17024 alignment. The BC OHSR Guideline G14.34.1 recognizes BC Crane Safety as the provincial authority and administrator of the crane operator certification process:

“Crane operator certification is administered through the British Columbia Association for Crane Safety (BC Crane Safety). As the administrator, BC Crane Safety is responsible for the certification process, including application, assessment, quality assurance, and maintenance of the certification scheme. BC Crane Safety has the authority to issue crane operator certification in BC.”

The updated BC Crane Safety crane operator certification scheme, when fully implemented in 2025 will include:

- Ability to recognize and accept other jurisdictions' certification (e.g., USA, Ireland, UK) and operator assessments by other, qualified providers
- Mandatory crane operator renewable certification
- Mandatory crane operator work history (logbook records)
- Ability to oversee crane operator discipline (e.g., revoke certification).

BC Crane Safety communicate this as the crane operator’s “right to title” vs. “right to practice”, where the crane operator’s original education and training is seen as the right to title and where certification and recertification will be treated as the right to practice.



Goals	Objectives	Lead Partners
B. Employ data visualization and analytics to identify incident factors, trends, and impacts.	3. Publish a data dashboard for select stakeholders to identify incident trends, OHS orders and contributing factors associated with claims and incidents.	BC Crane Safety/ WorkSafeBC
	4. Create a system of evaluation tools/processes to evaluate and measure the impact of initiatives and their outcomes.	BC Crane Safety/ WorkSafeBC

Data Dashboards and Evaluation Systems

BC Crane Safety has identified foundational goals for their business outcomes, including identifying and investigating the frequency of incident types, types of claims, number, and types of OHS orders written, as well as general metrics like measuring the effectiveness of its services, programs and initiatives.

The Association is working to develop a dashboard system that will not only identify these types of data but permit the organization to identify and determine data relationships for the purpose of reducing the severity and frequency of incidents.

Foundation work includes identifying and collecting sources of data, not only from within the province, but also worldwide crane statistics. Memoranda of Understanding or data-sharing agreements must be developed and implemented so that data and comprehensive metadata can continuously be shared, and datasets continue to be relevant. The goal of the dashboards is to enable nontechnical users to find the information they need with speed and ease.

To measure its services, programs and initiatives, BC Crane Safety will develop a system of evaluation processes and tools to measure and report results and outcomes, according to its logic model.

As an organization, BC Crane Safety will follow the “people, process, technology” framework to achieve its goals. Collaborating with trusted third-party partners with data management and dashboard expertise, we aim to build a system architecture and data platform that is cloud-based, accessible by stakeholders and relies on continuous improvement. BC Crane Safety must engineer its solutions to support evolution over time and work to embed data science culture and evolving analytics to ensure we have the data, systems, and processes in place to address queries when new opportunities arise.

Goals	Objectives	Lead Partners
C. Improve the safety of tower crane operations through technology and updated practices	5. Incorporate technology to improve safer crane operations	WorkSafeBC and supporting stakeholders
	6. Implement improved safe work practices and regulatory guidance, i.e., NOP-T, Plan for 10	WorkSafeBC and supporting stakeholders

BC Crane Safety produces resources, communications, and tools to assist in understanding changes to OHS compliance, improved safe work practices, and recent technologies that make crane operations safer, i.e., tower crane zoning (slewing device requirements), limits of approach and certification following misadventure.

Tower Crane Zoning (Slew Limiting) Device Requirements

WorkSafeBC has implemented OHSR amendment Section 14.84.1 - Overlapping operating zones - which clarifies that an employer must ensure a tower crane is erected to avoid overlapping operating zones with other tower cranes and other equipment and set out the procedures required if an overlapping operating zone cannot be avoided. Tower cranes must be equipped with and operated under the control of a zone-limiting device with anti-collision control, if practicable.

Depending on the tower crane age, the crane manufacturer may be silent on the installation of a zoning device; therefore, installation of a zoning device is considered a modification to the machine (OHSR 14.15).

Plan for 10: Section 19.24.1 — Limits of Approach When Working Close to High-voltage Electrical Equipment and Conductors

Any work near high-voltage electrical equipment or conductors needs to be carefully planned and conducted to prevent worker contact with electricity. Safe work practices must be implemented before working close to overhead powerlines. Future requirements also include the completion and filing of a Notice of Project – Tower Cranes.

Certification Following Misadventure Subsection (1) - Section 14.16.1

WorkSafeBC applies the term “misadventure” to crane incidents, including *a contact that is not consistent with operation as specified by a manufacturer or professional engineer*. Crane inspections must be completed after a misadventure *including contacts with loads, other cranes, equipment, buildings or structures*.

Goals	Objectives	Lead Partners
D. Confirm employers, supervisors and operators understand their safety responsibilities.	7. Check on employers', supervisors', and workers' understanding/ compliance with safety responsibilities, including employer responsibilities, site supervision, requirements for direct and indirect supervision, worker assessments and training, code of conduct, recertification requirements and logbook maintenance.	BC Crane Safety, SkillRecord Passport

Incorporating HSE Responsibilities into Logical Business Processes

BC Crane Safety provides tools, resources, and communications to sustain or improve the health and safety commitment of employers, supervisors, and workers.

Crane employers and contractors have a duty to inform workers or supervisors about any workplace hazards, provide and maintain equipment and protective devices and take every precaution reasonable to protect workers and minimize risks. They are also responsible for appointing competent persons as supervisors and ensuring maintenance of competencies of crews and operators. SkillRecord Passport will be offered as a tool for records compliance.

Crane supervisors and lead hands must be competent and qualified through knowledge, training, and experience to:

- Provide a safe workplace and assign safe work
- Inform workers about job hazards
- Train workers to do their jobs safely
- Ensure workers work safely and use equipment and protective devices properly where required
- Take all reasonable precautions to protect workers from illness and/or injury
- Assess crane operator competencies, knowledge, and skills.

Crane operators and crane-related workers are responsible for working in compliance with the Workers Compensation Act and OHS Regulation, including meeting and maintaining core competencies and recertification requirements. Operators will be encouraged to maintain their career competencies, seat time hours using SkillRecord Passport. Employers, supervisors, and Prevention Officers will be encouraged to refer to SkillRecord Passport for worker training and assessment records in support of OHS due diligence.

Goals	Objectives	Lead Partners
E. Improve the safety of tower crane, mobile crane, and boom truck equipment	8. Communicate WorkSafeBC's requirements for annual inspection of crane equipment through BC Crane Safety resources and tools for industry stakeholders.	WorkSafeBC, CSA, ANSI, EGBC
	9. Promote industry standards, including examples for next practices for equipment maintenance and inspections.	Industry Communities of Practice

Crane Equipment Inspection and Maintenance Programs

Annual Inspection and Certification for cranes (OHSR, Part 14) must be completed by professional engineers, as well as inspected and maintained according to CSA and ANSI/ASME standards. BC Crane Safety aims to develop tools, resources, and communication to assist crane employers, contractors, and supervisors in meeting regulatory compliance.

BC has many aging tower cranes (30-year-old average). Other than routine maintenance, manufacturers are silent on major components (gear box, slew ring, hoist package, braking systems, etc.), "major inspection", "tear-down" frequencies or requirements. Industry Partners (Ledcor, PCL, ITC, Wall-Centre) are proposing a 10-year tower crane major inspection requirement that involves the examination of all components of the crane.

BC Crane Safety has developed Communities of Practice, i.e., tower crane, to review operations and maintenance practices like establishing a registry of tower crane assemblers and will propose these groups develop major component inspection practices. BC Crane Safety may work with industry partners to develop safe work practices on tower cranes, mobile cranes and boom trucks, as well as recommended inspection/maintenance programs. BC Crane Safety has developed a Preventive Maintenance Inspection booklet (2021) covering maintenance program responsibilities, owners' logbook/records, crane operations maintenance logs, maintenance system records, crane components and post inspection discussions. The proposed maintenance program/system will illustrate and describe types of records as well as maintenance systems that must be maintained to comply with CSA standards and the Occupational Health and Safety regulation.

Another tool being considered may involve a prime contractor group to establish a requirement/system regarding what to look for in a tower crane inspection.

Goals	Objectives	Lead Partners
F. Improve the safety of tower crane equipment	10. Below the hook lifting devices	Canadian Hoisting and Rigging Safety Council (CHRSC)
	11. Rigging practices	Canadian Hoisting and Rigging Safety Council (CHRSC)

Below the Hook Lifting Device (BHL) Requirements - WorkSafeBC

OHSR 15.57 requires BHL's to be designed to the ASME B30.20-1993 Standard. The scope of this Standard clearly does not include multi-point lifting devices (devices with more than one lifting point), i.e.: garbage box, glass rack, bin, concrete bucket, etc. Currently, engineers are using this Standard for the design of all BHLs.

WorkSafeBC's Engineering and Prevention Crane Team have discussed this issue many times over the past 10 years with no solution or confirmation of what Standard these "other" BHLs are required to comply with.

Rigging Competency Standard

The Rigging Competency Standard was finalized in 2019. Copies were distributed nationally to stakeholders attending the 2019 Tower Crane Conference, Richmond, BC.

The BC Crane Safety Rigging Standards is a grass-roots movement headed by Fraser Cocks, CHRSC. The purpose of the Rigging Standards project is to consolidate a national Standard for Canada.

BC Crane Safety aims to implement the competency standard within BC as a recognized, certified occupational standard.



Goals	Objectives	Lead Partners
G. Improve the safety of tower crane incidents	12. Support Technical High Angle Rope Rescue Program (THARRP) Services within tower crane community of practice.	Tower Crane Community of Practice
<p>THARRP</p> <p>Currently the BC Construction Safety Alliance manages THARRP services. BC Crane Safety aims to support this program through any additional communication to improve operational use of the program, when asked by the tower crane community or by BCCSA.</p>		



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