Tragedies show importance of safe crane operation

By Sarah Ripplinger

BC Crane Safety and WorkSafeBC are raising awareness about best practices for tower crane erection and operation with the message that failure could be catastrophic.

Two ironworkers and two people in cars were killed when a tower crane fell in Seattle, Washington, in April 2019. Two months later, a crane collapsed on an apartment building in Dallas, Texas, taking one person's life, and injuring more. Then in September, residents in Halifax, Nova Scotia, were evacuated after a crane collapse. These incidents underscore the importance of the proper erection, disassembly, maintenance, and operation of tower cranes.

There are around 300 tower crane operators and 40 tower crane erectors and disassemblers in British Columbia. Between 2014 and 2018, about 100 time-loss claims were accepted for operators of mobile, boom truck, and tower cranes for such incidents as falls, overexertion, and impacts with objects. However, no fatalities have occurred as a result of a tower crane incident in B.C. — a fact the industry wants to leave intact.

Preventing catastrophic tower crane failure is a focus of BC Crane Safety and WorkSafeBC's Provincial Crane Inspection Team. BC Crane Safety administers crane operator certification and is closely involved in shaping the standards and certification protocols governing the approximately 300 tower cranes operating in B.C. at any given time.

The ultimate goal of both BC Crane Safety and the WorkSafeBC crane team is to identify and eliminate tower crane hazards and unsafe work practices that can lead to injuries and tragedies similar to what occurred in Seattle and Dallas.

Identifying potential hazards

In the case of the Seattle tower crane incident, initial reports stated that the crane was being dismantled when it fell onto a busy city street.

"International research suggests that 10 to 12 percent of all fatalities related to crane incidents are caused by tower crane erection and disassembly," notes Angélique Prince, director of certification and licensing with BC Crane Safety.

Supervisors are responsible for ensuring that erectors and disassemblers have the knowledge, experience, and training they need to perform their duties. Moving forward, BC Crane Safety and WorkSafeBC have collaborated to form a technical committee focused on standardization of pre-planning and erection/disassembly activities.

WorkSafeBC officers assigned to the crane team currently review crane pre-erection plans, maintenance

records, and operator qualifications during tower crane inspections.

"On the erection and disassembly side, we're certainly concerned with pre-planning. We're also mindful, particularly in the Lower Mainland where we have several tower cranes on one site, how complex that work can become and the importance of supervision," notes Jaret Swanson, a manager in Prevention Field Services with WorkSafeBC.

Prime contractors should consider time pressures associated with such things as city permits for road closures, adds Prince. Other trade work underway on the site at the time of erection or disassembly should also be taken into account, as it can impact how long it takes erectors and disassemblers to complete the job.

BC Crane Safety has an online pre-erection checklist on bccranesafety.ca that outlines 28 key safety considerations and personnel requirements. The checklist starts with a review of the area where equipment will be installed and how assembly will transpire. Other sections include first aid, traffic control plans, a flight path assessment, site orientations, and fall protection plans for workers.

"A professional engineer must certify the tower crane installation approach, and qualified workers must conduct its assembly," notes Swanson. More information can be found in Part 14 of the Occupational Health and Safety Regulation, *Cranes and Hoists*.

Meanwhile, owners, prime contractors, and employers need to make sure they are performing risk assessments and documenting regular maintenance checks and any necessary repairs on equipment.

For Swanson, it's important to remember that fatal incidents show how devastating the consequences can be when work goes off the rails, but they aren't inevitable. "If the proper processes and procedures are followed, those things shouldn't happen."

For more information

Guidelines on operator qualifications can be found in the *Occupational Health and Safety Guideline G14.34 — Operator qualifications and competencies*.

Search for "crane" at worksafebc.com to find more information about the WorkSafeBC Crane Initiative, the Construction Site Tower Crane Report, tower crane inspection checklists, and the pre-erection checklist.