

# CRANE OPERATOR COMPETENCIES

## Tower Crane

K: Indicates that it is a theory competency (knowledge of the crane operator)

W: Indicates that is a workplace competency (an activity an operator performs)

### 1. Safety (CS)

- |      |  |                          |
|------|--|--------------------------|
| 1.1  | Demonstrate knowledge of safe working practices for crane operators (K)  | <input type="checkbox"/> |
| 1.2  | Demonstrate knowledge of Workplace Hazardous Materials Information System (WHMIS) (K)  | <input type="checkbox"/> |
| 1.3  | Manage first aid in emergency situations (K)   | <input type="checkbox"/> |
| 1.4  | Demonstrate knowledge of power line hazards and high voltage equipment (K)   | <input type="checkbox"/> |
| 1.5  | Comply with WorkSafe BC and OH&S regulations (W)   | <input type="checkbox"/> |
| 1.6  | Respond to fire emergencies (W)  | <input type="checkbox"/> |
| 1.7  | Demonstrate knowledge of tower crane specific PPE (K)  | <input type="checkbox"/> |
| 1.8  | Demonstrate knowledge of regulation, standards and documentation relevant to tower crane operations (K)  | <input type="checkbox"/> |
| 1.9  | Demonstrate knowledge of regulations and protocols for operating a tower crane in proximity to power lines, cable hazards and high and low voltage equipment (K) | <input type="checkbox"/> |
| 1.10 | Demonstrate knowledge of documentation for the site and the operator's tower crane (W)   | <input type="checkbox"/> |

### 2. Communications (CCOM)

- |      |  |                          |
|------|--|--------------------------|
| 2.1  | Demonstrate knowledge of personnel involved in crane operations (K)              | <input type="checkbox"/> |
| 2.2  | Demonstrate knowledge of hand signals (K)  | <input type="checkbox"/> |
| 2.3  | Demonstrate knowledge of radio communications (K)                                | <input type="checkbox"/> |
| 2.4  | Demonstrate knowledge of workplace communications (K)                            | <input type="checkbox"/> |
| 2.5  | Use hand signals in the workplace (W)  | <input type="checkbox"/> |
| 2.6  | Use radio communications in the workplace (W)                                    | <input type="checkbox"/> |
| 2.7  | Communicate information clearly and check for understanding in the workplace (W) | <input type="checkbox"/> |
| 2.8  | Demonstrate knowledge of tower hand signals (K)                                  | <input type="checkbox"/> |
| 2.9  | Demonstrate knowledge of tower crane radio protocols and vocabulary (K)          | <input type="checkbox"/> |
| 2.10 | Interpret tower crane hand signals in the workplace (W)                          | <input type="checkbox"/> |
| 2.11 | Use tower crane radio protocols and vocabulary in the workplace (W)              | <input type="checkbox"/> |

**3. Cranes (CC)**

- 3.1 Demonstrate knowledge of types of cranes and classifications (K)
- 3.3 Demonstrate knowledge of terminology related to craning and craning concepts (K)
- 3.6 Demonstrate knowledge of hoisting terminology, functions and systems (K)
- 3.7 Demonstrate knowledge of regulatory requirements pertaining to cranes (K)
- 3.8 Demonstrate knowledge of the training and certification process for tower crane operators (K)
- 3.9 Demonstrate knowledge of tower crane applications (K)
- 3.10 Demonstrate knowledge of tower crane types and configurations (K)
- 3.11 Demonstrate knowledge of the erection and dismantling processes for tower cranes (K)
- 3.12 Demonstrate knowledge of components and their functions for different types of tower cranes (K)
- 3.13 Demonstrate knowledge of tower crane climbing and towering methods and hazards (K)
- 3.14 Demonstrate knowledge of drives, controls and safety devices for tower cranes (K)
- 3.15 Identify and describe the function of the drives, controls and safety devices on the operator’s tower crane (W)

**4. Rigging (CR)**

- 4.1 Demonstrate knowledge of lifting theory and forces (K)
- 4.2 Demonstrate knowledge of rigging hardware, materials, tools and manuals (K)
- 4.3 Demonstrate knowledge of types and function of wire rope and chains (K)
- 4.4 Demonstrate knowledge of installation, inspection and storage of wire rope (K)
- 4.5 Demonstrate knowledge of rigging techniques (K)
- 4.6 Use rigging hardware and tools in the workplace (W)

**5. Load Charts (CLC)**

- 5.1 Demonstrate knowledge of determining weight loads using fundamental math functions and calculations (K)
- 5.2 Demonstrate knowledge of loading and lifting (K)
- 5.3 Interpret load charts and load study drawings to configure crane for workplace operation (W)

**6. Transportation & Delivery (ATD)**

**7. Site Planning & Crane Positioning (ASPCP)**

**8. Crane Operations (CO)**

- 8.1 Demonstrate knowledge of pre-operational requirements in crane operations (K)
- 8.4 Demonstrate crane set-up per manufacturer’s instructions (except Task 4 in Mobile) (W)

**9. Maintenance & Service (CMS)**

- 9.7 Maintain an equipment logbook to retain a permanent written record of maintenance and repairs (W)
- 9.8 Demonstrate knowledge of daily and monthly inspections for tower cranes (K)
- 9.9 Demonstrate knowledge of annual and special inspection requirements for tower cranes (K)
- 9.10 Conduct a start of shift tower crane inspection in the workplace (W)
- 9.11 Conduct tower crane load limit and range of travel tests inthe workplace (W)

**13. Tower Crane Operations**

- 13.1 Demonstrate knowledge of hoisting and rigging for tower cranes (K)
- 13.2 Demonstrate knowledge of tower crane load charts and load calculations (K)
- 13.3 Demonstrate knowledge of how weather conditions affect tower crane operations (K)
- 13.4 Demonstrate knowledge of a tower crane operator’s duties and responsibilities (K)
- 13.5 Demonstrate knowledge of protocols for leaving a tower crane unattended (K)
- 13.6 Demonstrate knowledge of protocols for operating a tower crane ona multi-crane site (K)
- 13.7 Operate a tower crane safely in the workplace according to regulations and manufacturer’s specifications (W)
- 13.8 Leave a tower crane unattended in the workplace (W)