



ONTARIO COLLEGE OF TRADES

ORDRE DES MÉTIERS DE L'ONTARIO

Apprenticeship
Training Standard

Tower Crane Operator

Trade Code: 339B

Development Date: August 1998

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Competency Analysis Profile

PREFACE

This training document was developed by the Workplace Support Services Branch of the Ministry of Education and Training (MET) in consultation with representatives from the industry. These Training Standards are intended to be used by apprentice/trainee, instructors and companies as a "blueprint" for training or as a prerequisite for Ministry accreditation/certification.

The care and maintenance of this book is the joint responsibility of the apprentice/trainee and the employer. The Training Standards were developed specifically for documenting the apprentice's/trainee's acquisition of skills.

The book becomes the only record of an apprentice's/trainee's training.

IMPORTANT DIRECTIONS FOR TRAINERS

The Training Standards identify skills required for this occupation and its related training program. These Training Standards have been written in concise statements which describe how well an apprentice/trainee must perform each skill in order to become competent.

In using these Training Standards, trainers will be able to ensure that the apprentice/trainee is developing skills detailed for the occupation.

Trainers and apprentices/trainees are required to sign off and date the skills following each successful acquisition.

Employers participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing on the appropriate line included at the end of each unit.

IMPORTANT DIRECTIONS TO THE APPRENTICE/TRAINEE

Apprentice

1. All hours working for each employer(s) should be recorded in the Employer Information section.
2. The "Summary of Hours" should be completed, signed and dated by both the apprentice and employer when either all terms of the contract have been completed or the apprentice leaves the employ of the employer.
3. It is the responsibility of the apprentice to inform the local Apprenticeship Client Services office regarding the following changes:
 - change of employer address;
 - change of apprentice name or address;
 - transfer to a new employer.
4. At the fulfillment of all terms of a Contract of Apprenticeship, the Apprentice/Trainee Completion Form must be completed and signed by the current employer. Present these completed and authorized Training Standards and the Apprentice/Trainee Completion Form to your local Apprenticeship Client Services office.

Trainee

1. Training Reports must be signed for modular trainees by Ministry of Education and Training designated Signing Authority and forwarded to a local Apprenticeship Client Services office.
2. At the completion of training, the Apprentice/Trainee Completion Form must be completed and signed off by the employer/Signing Authority and submitted to the local Apprenticeship Client Services office.

NOTICE OF COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this training standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.
2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.
4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
TTY: 1-866-533-6339 or 416-325-4084.

Please Note: Apprenticeship Training and Curriculum Standards were developed by the Ministry of Training, Colleges and Universities (MTCU). As of April 8th, 2013, the Ontario College of Trades (College) has become responsible for the development and maintenance of these standards. The College is carrying over existing standards without any changes.

However, because the Apprenticeship Training and Curriculum Standards documents were developed under either the Trades Qualification and Apprenticeship Act (TQAA) or the Apprenticeship and Certification Act, 1998 (ACA), the definitions contained in these documents may no longer be accurate and may not be reflective of the Ontario College of Trades and Apprenticeship Act, 2009 (OCTAA) as the new trades legislation in the province. The College will update these definitions in the future.

Meanwhile, please refer to the College's website (<http://www.collegeoftrades.ca>) for the most accurate and up-to-date information about the College. For information on OCTAA and its regulations, please visit: <http://www.collegeoftrades.ca/about/legislation-and-regulations>

APPRENTICE/TRAINEE RECORD

Apprentice/Trainee Name: _____

Contract Number: _____ (If applicable)

EMPLOYER INFORMATION

Company: _____

Address: _____

Telephone: _____

Summary of Hours:

Dates of Employment: _____
From To

Total hours of training and instruction between dates of employment _____ Hours

Employer's
Signature

Date

Apprentice/Trainee
Signature

Date

TOWER CRANE OPERATOR

EMPLOYER INFORMATION

Company: _____

Address: _____

Telephone: _____

Summary of Hours:

Dates of Employment: _____
From To

Total hours of training and instruction between dates of employment _____ Hours

Employer's Date Apprentice/Trainee Date
Signature Signature

EMPLOYER INFORMATION

Company: _____

Address: _____

Telephone: _____

Summary of Hours:

Dates of Employment: _____
From To

Total hours of training and instruction between dates of employment _____ Hours

Employer's Date Apprentice/Trainee Date
Signature Signature

TOWER CRANE OPERATOR

EMPLOYER INFORMATION

Company: _____

Address: _____

Telephone: _____

Summary of Hours:

Dates of Employment: _____
From To

Total hours of training and instruction between dates of employment _____ Hours

Employer's Date Apprentice/Trainee Date
Signature Signature

EMPLOYER INFORMATION

Company: _____

Address: _____

Telephone: _____

Summary of Hours:

Dates of Employment: _____
From To

Total hours of training and instruction between dates of employment _____ Hours

Employer's Date Apprentice/Trainee Date
Signature Signature

APPRENTICE/TRAINEE COMPLETION FORM

Apprentice/Trainee Name _____
Print

Signature _____

Social Insurance Number _____

Training Units when completed should be signed off by Trainer/Signing Authority on the following page and presented with this completion form to your local Apprenticeship Client Services Field Office. Any supporting documentation should also be attached.

In-School completed:
(proof to be provided) Yes () No () Not Applicable ()

Hours completed as
per Contract: Yes () No () Not Applicable ()

Employer _____

Name: _____

Address: _____

Telephone: _____

Signing Authority: _____
Signature

MET USE ONLY:

Recommended for Exam: Yes () No ()

Signature

Consultant/Office Code

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario's apprenticeship training system. For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.

TRAINING UNIT COMPLETION FORM

TRAINING UNIT	TITLE	SIGNING AUTHORITY
U5340.0	Protect Self and Others	_____
U5341.0	Conduct Pre-operational Inspections	_____
U5342.0	Plan Lifts	_____
U5343.0	Perform Rigging	_____
U5344.0	Operate Hammerhead Cranes	_____
U5345.0	Operate Luffer Cranes	_____
U5346.0	Climb Cranes (Internal)	_____
U5347.0	Maintain Cranes	_____

U5340.0 PROTECT SELF AND OTHERS

GENERAL PERFORMANCE OBJECTIVE

Protect self and others by: wearing and maintaining protective clothing and equipment; operating the crane in a safe manner; maintaining a safe work environment; reporting crane contact with high voltage; checking machinery guards; performing emergency rescues and fire safety procedures; ascending and descending the crane; securing unattended cranes; and interpreting and obeying signals.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5340.1 *Wear and maintain personal protective clothing and equipment, including hard hat, safety glasses, hearing protectors and safety harnesses, in accordance with company policy and the Occupational Health and Safety Act (OHSA).*

Date Completed

Supervisor's Signature

Apprentice's Signature

U5340.2 *Operate the crane in a safe manner by: ensuring safety of personnel and property: reporting accidents and unsafe conditions to appropriate workplace personnel; completing accident reports; notifying local utility companies of crane operations; and by ensuring loads are not 'stuck' or frozen before hoisting; in accordance with company policy and OHSA.*

Date Completed

Supervisor's Signature

Apprentice's Signature

US340.0 PROTECT SELF AND OTHERS.../cont'd

U5340.3 *Maintain a safe work environment* by: ensuring that the work site free of hazards; checking for obstructions including overhead and embankment obstacles; and checking that safety devices including lighting and anemometer are operational and functional; in accordance with company procedures and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.4 *Operate crane safely near high voltage equipment* by: following recommended procedures including; limits of approach; designating a signal person; using insulated materials and blankets; and grounding and bonding; in accordance with OHS.A, utility regulations, and other government legislation.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.5 *Report crane contact with high voltage* to the work site supervisor and record in log book, in accordance with OHS.A, other government legislation and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.0 PROTECT SELF AND OTHERS.../cont'd

U5340.6 *Inspect and service machinery guards, covers and warning labels by replacing and installing missing, loose, damaged parts and components, in accordance with manufacturers' recommendations and OHSA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.7 *Perform emergency rescues by: using a rescue box, stretcher or material box; notifying emergency personnel, so that rescues are performed safely and efficiently; in accordance with company policy and job site requirements.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.8 *Ascend and descend the crane by: using the three point contact method; and exiting the crane in a safe manner in an emergency, while exercising caution in adverse weather conditions; in accordance with Construction Safety Association of Ontario safety manuals.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.0 PROTECT SELF AND OTHERS.../cont'd

U5340.9 *Operate crane safely in inclement weather* by: assessing weather conditions: exercising good judgment and stopping crane operations for conditions such as, freezing rain, high winds, lightening and extreme cold; in accordance with manufacturers' recommendations, company policy and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.10 *Perform recommended fire safety procedures* by, inspecting the workplace and equipment, and using firefighting techniques, in accordance with company policy and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.11 *Secure an unattended crane for short periods* by: removing loads from hook block: hoisting the block to highest height; trolleying the carriage to a safe radius; weathervaning the crane; locking the cab; and positioning the boom; in accordance with manufacturers' recommendations, OHSA, company policy and job site requirements.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.0 PROTECT SELF AND OTHERS.../cont'd

U5340.12 *Secure an unattended crane for extended periods* by: removing loads from hook block; hoisting the block to highest height; trolleying the carriage to a safe radius; weathervaning the crane; tarping the hoists and trolley drums; protecting the crane and components from weather elements; and positioning the boom; in accordance with manufacturers' recommendations, OHSA, company policy and job site requirements.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5340.13 *Interpret and obey signals* by, performing the correct maneuver according to hand and radio signals communicated, to ensure that lifts are performed safely and efficiently, in accordance with OSHA, company policy and job site requirements.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5341.0 CONDUCT PRE-OPERATIONAL INSPECTIONS

GENERAL PERFORMANCE OBJECTIVE

Conduct pre-operational inspections by: reading and interpreting reference material; performing daily pre-operational inspections; inspecting the crane structure, mechanical and electrical systems; inspecting the wire rope and components; inspecting the support structure and travel tracks; performing function tests; and maintaining log books.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5341.1 *Read and interpret reference material, including manufacturer's manuals, engineered drawings, erection, soil and inspection reports, and government legislation, to identify the sequence of inspection procedures, location and function of controls, and shut down procedures to ensure that pre operational inspections are conducted, in accordance with manufacturers' recommendations, OHSA, and company policy.*

Date Completed

Supervisor's Signature

Apprentice's Signature

U5341.2 *Perform a daily pre-operational inspection by, checking the mechanical, structural electrical systems and components and reporting results to appropriate personnel, in accordance with the manufacturers' recommendations and OHSA.*

Date Completed

Supervisor's Signature

Apprentice's Signature

U5341.0 CONDUCT PRE-OPERATIONAL INSPECTIONS.../cont'd

U5341.3 *Inspect the crane structure and components, including the crane base, tower, bolts, pins, platforms, ladders, guard rails, catwalk, chords, lattices, pendant, jibs and counter jibs, moveable or fixed counterweights, turntable and operators cabin, by: checking for loose and damaged parts; broken wires: corrosion: cracked welds: structural distortions; and checking that correct erection procedures were followed when the crane was assembled; in accordance with manufacturers' recommendations and OHSA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.4 *Inspect the mechanical systems and components, including turntable, bearings and rollers, swing gear and brakes, machinery mounts and decks, and the hoist, boom and trolley works, by: checking for correct bearing tolerances; loose, worn and damaged parts; corrosion; distortion; weld cracks; leaks; brake adjustments; fluid levels: spring tension; excessive vibration; sounds and smell; in accordance with manufacturers' recommendations, OHSA and company policy.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.5 *Inspect the electrical systems and components, including control panels, motors, brush covers, and limit switches, by: checking that the power and control cables are connected; that the power is off; and by checking for worn, loose and damaged parts: obstructions; exposed cables; burn marks, sparks, smells, and sound; in accordance with manufacturers' recommendations and 01-ISA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.0 CONDUCT PRE-OPERATIONAL INSPECTIONS.../cont'd

U5341.6 *Inspect the wire rope* by: checking for manufacturer's certificate of origin; correct length, installation and diameter; correct spooling and tension: distorted and broken wires; excessive wear; 'bird caging'; and corrosion: in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.7 *Inspect the wire rope components*, including sheaves, drums, wedges, sockets, hook blocks, keepers, dead ends, clamps, thimbles and connections, by: checking for distortions; worn; loose; damaged parts; groove profile; and excessive hearing play; in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.8 *Inspect the support structure and conditions*, including the tower wedges, by: checking that the shoring is plumb, level and braced; checking anchor bolts and grouting; and tower wedges and support beams are installed and fastened; in accordance with the engineered drawings.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.0 CONDUCT PRE-OPERATIONAL INSPECTIONS.../cont'd

U5341.9 *Inspect travel tracks and components, including rail ties, power cables. stops. travel brakes, rail clamps and 'bogey's', undercarriage, counter ballast, limit switches, warning devices and travel gear, by: checking for spooling; loose; damaged parts; ensuring tracks are grounded and level; checking for adequate swing clearance; brake and switch adjustments and alignment; and adequate lubrication; in accordance with OHSA manufacturers' recommendations and company policy.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.10 *Perform a function test by, engaging the controls and ensuring the limit switches fix the swing, hoist, moment, trolley and travel functions are operating and functioning, in accordance with manufacturers' recommendations and OHSA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5341.11 *Maintain crane log book, ensuring that all entries are recorded in a legible, clear, and concise manner, in accordance with company policy and OHSA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5342.0 PLAN LIFTS

GENERAL PERFORMANCE OBJECTIVE

Plan lifts by: reading and interpreting reference material; participating in pre-operational job site meetings; communicating with work site personnel; determining load weights, gross loads and crane capacities; selecting crane configurations; planning lifts with cranes equipped with personnel baskets; and planning specialty lifts.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5342.1 *Read and interpret reference material*, including manufacturers' manuals, load charts, blue prints, engineering drawings, work site specifications, and bills of lading, to identify and calculate: crane configurations and attachments; load weights; gross loads on cranes; gross capacities; load and boom clearances; working radius; hook height; so that pre-lift planning can be performed efficiently.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5342.2 *Participate in pre-operational meetings* by: identifying a signal person; establishing communications methods; determining rigging requirements; selecting pick up points; identifying overlap zones, obstacles & other hazards; in accordance with OHSA. company policy and job site requirements.

Date Completed

Supervisor's Signature

Apprentice's Signature

US342.0 PLAN LIFTS.../cont'd

U5342.3 *Communicate with site supervisor and other trade personnel by: coordinating crane operations & material storage; identifying hazards and site changes; and maintaining rapport with co-workers ensuring that information is clear concise and accurate; in accordance with company policy and job site requirements.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5342.4 *Determine load weights and gross loads by: using the manufacturer's manuals, blueprints, engineering drawings, bills of lading, load charts, calculators and other measuring devices and performing calculations, so that lifts can be performed in a safe and efficient manner.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5342.5 *Determine crane capacity by: using manufacturer's manuals; calculated rigging requirements; and crane capacity charts, to ensure that crane is the correct one for the lift; in accordance with work site requirements, manufacturers' recommendations. and company policy.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5342.0 PLAN LIFTS .../cont'd

U5342.6 *Select crane configuration and attachments* by: determining the number of parts of line; transmission gear ratios; using gross capacities chart, calculated gross loads, working radius and hook height, in accordance with work site conditions and manufacturers' recommendations.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5342.7 *Prepare for lift using cranes equipped with personnel buckets or suspended platforms* by: reading and interpreting engineered drawings and inspection reports; inspecting buckets, platforms, fall arrest systems and full body harness; ensuring loads on crane do not exceed 25% of maximum rated loads, so that lifts can be performed safely; in accordance with OHSA..

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5342.8 *Prepare for specialty lifts and operations, including multiple crane, precision, heavy and production lifts* by: establishing communication with other crane operators and signal persons; planning lift with work site supervisor; and selecting rigging, using calculated load weights and crane capacities, so that specialty operations are performed in a co-ordinated, safe and efficient manner; in accordance with engineered drawings OHSA job site requirements and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5343.0 PERFORM RIGGING

GENERAL PERFORMANCE OBJECTIVE

Perform rigging by: reading and interpreting reference material; inspecting rigging equipment and lifting devices; selecting rigging equipment; performing various rigging techniques; and maintaining and storing rigging equipment.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5343.1 *Read and interpret rigging reference material*, including supplier, manufacturer and rigging manuals, OHSA, and company policies to identify, calculate and determine, rigging hardware and application, sling arrangements and angles, safe working loads (SWL), safety devices, and maintenance procedures so that rigging can be performed in a safe and efficient manner.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5343.2 *Inspect rigging equipment* by, checking for frayed, cut, damaged and worn equipment, to ensure that damaged rigging equipment is not put into service, in accordance with manufacturer and rigging manuals, OHSA, and company policy.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5343.0 PERFORM RIGGING.../cont'd

U5343.3 *Inspect lifting devices, including concrete buckets, block forks, compressed gas cages, forms, and material boxes, by checking for loose shackles, cracks, broken wires, gross weights and structural integrity, in accordance with manufacturers' recommendations, engineered drawings and OHSA.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5343.4 *Select rigging equipment by, determining capacity and configuration of loads, and centre of gravity, in accordance with manufacturers' recommendations, OHSA, rigging manuals and company policy.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5343.5 *Perform rigging and slinging techniques, using rigging hardware and sling arrangement types, including fibre, wire rope, alloy steel chains, shackles, saddle cable clips, eye bolts, turnbuckles, choker hooks, spreader bars, swivels and tag lines, so that lifts are rigged safely and efficiently, in accordance with manufacturer and supplier recommendations, rigging manuals. OHSA, other government legislation, and company policy.*

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5343.0 PERFORM RIGGING.../cont'd

U5343.6 *Maintain and store rigging equipment* by: lubricating wire rope; cleaning slings, chains and hardware; and storing equipment in dry areas away from heat and corrosive chemicals; in accordance with manufacturer, rigging and supplier manuals, OHSA and company policy.

Date Completed

Supervisor's Signature

Apprentice's Signature

Employer's Name

Employer's Signature

U5344.0 OPERATE HAMMERHEAD CRANES

GENERAL PERFORMANCE OBJECTIVE

Operate Hammerhead cranes by: reading and interpreting manufacturer's operating manuals; programming on board computers; performing pre-operational checks: and performing various operations without and with loads.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5344.1 *Read and interpret manufacturer's operating manual* to identify location of controls, emergency functions, safety devices, safe operating practices, gross and net capacities, so that cranes can be operated in a safe and efficient manner.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5344.2 *Program the on board computer system* by inputting lift data including boom and jib configurations, parts of line, reeving, and blocks, in accordance with manufacturers' recommendations and company policy.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5344.0 OPERATE HAMMERHEAD CRANES.../cont'd

U5344.3 *Perform pre-operational checks* by: checking that the power supply is on; familiarizing yourself with controls including emergency shutdown; activating the swing brakes; and starting the crane so that the crane is prepared and ready for operation; in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.4 *Trolley the carriage without a load* by engaging the controls, checking that the carriage is kept in line with the block, while maintaining control of the block at various speeds, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.5 *Trolley the carriage with a load* by engaging the controls, checking that the carriage is kept in line with the load, while maintaining control of the load at various speeds, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.0 OPERATE HAMMERHEAD CRANES.../cont'd

U5344.6 *Swing (slew) the jib without a load* by engaging the controls, checking that the block is kept in line with the jib, while maintaining control at various speeds and applying swinging (slewing) and holding brakes, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.7 *Swing (slew) the jib with a load* by engaging the controls, checking that the block is kept in line with the load, while maintaining control of the load at various speeds, and applying swinging (slewing) and holding brakes, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.8 *Raise and lower the hook without a load* by engaging the controls, accelerating and decelerating at various speeds, while allowing for adequate safe stopping distances, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.0 OPERATE HAMMERHEAD CRANES.../cont'd

U5344.9 *Raise and lower the hook with a load* by engaging the controls, accelerating and decelerating at various speeds, while allowing for adequate safe stopping distances, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.10 *Travel the crane without a load* by: checking that the tracks are clear of obstructions; checking that travel brakes are operating; and by engaging the controls, checking that the block is kept plumb, while maintaining control of the crane at various speeds; in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.11 *Travel the crane with a load* by: checking that the tracks are clear of obstructions; checking that travel brakes are operating; and by engaging the controls, checking that the load is kept plumb, while maintaining control of the crane at various speeds; in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.0 OPERATE HAMMERHEAD CRANES.../cont'd

U5344.12 *Trolley, swing (slew), hoist and travel the crane without a load* by using co-ordinated motions, checking for smooth crane and load movement while maintaining control of the load at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5344.13 *Trolley, swing (slew), hoist and travel the crane with a load* by using coordinated motions, checking for smooth crane and load movement while maintaining control of the load at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5345.0 OPERATE LUFFER CRANES

GENERAL PERFORMANCE OBJECTIVE

Operate Luffer cranes by: reading and interpreting manufacturer's operating manuals; programming on board computers; performing pre-operational checks; and performing various operations without and with loads.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5345.1 *Read and interpret manufacturers' operating manuals, to identify location of controls, emergency functions, safety devices, safe operating practices, gross and net capacities, so that cranes can be operated in a safe and efficient manner.*

Date Completed

Supervisor's Signature

Apprentice's Signature

U5345.2 *Program the on board computer system by inputting lift data including boom and jib configurations, parts of line, reeving and blocks, in accordance with manufacturers' recommendations and company policy.*

Date Completed

Supervisor's Signature

Apprentice's Signature

U5345.0 OPERATE LUFFER CRANES.../cont'd

U5345.3 *Perform pre-operational checks* by: checking that the power supply is on: activating the swing brakes; familiarizing yourself with controls including emergency shut down; and, starting the crane so that the crane is prepared and ready for operation; in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.4 *Boom (luff) up and down without a load* by engaging the controls, checking that the block (ball) is kept in line with the point of boom, while maintaining control of the block at various speeds, in accordance with the manufacturing recommendation and 01-ISA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.5 *Boom (luff) up and down with a load* by engaging the controls, checking that the load is kept in line with the point of boom, while maintaining control of the load at various speeds, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.0 OPERATE LUFFER CRANES.../cont'd

U5345.6 *Swing (slew) the jib without a load* by engaging the controls, checking that the block is kept in line with the jib, while maintaining control at various speeds and applying swinging (slewing) and holding brakes, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.7 *Swing (slew) the jib with a load* by engaging the controls, checking that the load is kept in line with the jib, while maintaining control of the load at various speeds, and applying swinging (slewing) and holding brakes, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.8 *Raise and lower the hook without a load* by engaging the controls, accelerating and decelerating at various speeds, while allowing for adequate safe stopping distances, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.0 OPERATE LUFFER CRANES.../cont'd

U5345.9 *Raise and lower the hook with a load* by engaging the controls, accelerating and decelerating at various speeds, while allowing for adequate safe stopping distances, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.10 *Boom (luff) up and hoist down simultaneously without a load* by engaging the controls using co-ordinated motions, checking for smooth crane and load movement, while maintaining a constant hook height and control of the block at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.11 *Boom (luff) up and hoist down simultaneously with a load* by engaging the controls using co-ordinated motions, checking for smooth crane and load movement, while maintaining a constant hook height and control of the block at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.0 OPERATE LUFFER CRANES.../cont'd

U5345.12 *Boom (luff) down and hoist up simultaneously without a load* by engaging the controls using co-ordinated motions, checking for smooth crane and load movement, while maintaining a constant hook height and control of the block at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.13 *Boom (luff) down and hoist up simultaneously with a load* by engaging the controls using co-ordinated motions, checking for smooth crane and load movement, while maintaining a constant hook height and control of the block at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.14 *Travel the crane without a load* by checking that the tracks are clear of obstructions, and by engaging the controls, checking that the block is kept plumb, while maintaining control of the crane at various speeds, in accordance with manufacturers' recommendations and OHS.A.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.0 OPERATE LUFFER CRANES.../cont'd

U5345.15 *Travel the crane with a load* by checking that the tracks are clear of obstructions, and by engaging the controls, checking that the load is kept plumb, while maintaining control of the crane at various speeds, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.16 *Boom (luff), swing (slew), hoist and travel the crane without a load* by using co-ordinated motions, checking for smooth crane and load movement, while maintaining control of the block at various speeds, so that the crane is operated safely and efficiently, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5345.17 *Boom (luff), swing (slew), hoist and travel the crane with a load* by using co-ordinated motions, checking for smooth crane and load movement, while maintaining control of the load at various speeds, so that lifts are performed safely and efficiently, in accordance with manufacturers' recommendations and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5346.0 CLIMB CRANES (INTERNAL)

GENERAL PERFORMANCE OBJECTIVE

Climb cranes by: reading and interpreting reference material; preparing to climb the crane; assembling climbing apparatus; balancing the crane; raising, setting and securing the crane; inspecting the raised crane; and performing a test run.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5346.1 *Read and interpret climbing reference material*, including manufacturer's manuals, base anchor, and shoring drawings, to identify and select material required to climb, balance and secure the crane so that the crane can be raised safely and efficiently.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5346.2 *Prepare to climb the crane* by: inspecting the shoring and crane openings; checking that the brace and support materials are correctly installed, secured and plumb; checking crane openings for obstructions, size, alignment and power cable strain relief; and checking that there is sufficient length of power and hoist cable to elevate the crane; in accordance with engineered drawings, manufacturers' recommendations, company policy and OHSA.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5346.0 CLIMB CRANES (INTERNAL).../cont'd

U5346.3 *Assemble climbing apparatus and components* by: installing beams, bars, ladders, cables, and wedges; bolting climbing frames; placing and securing jacks; and checking hydraulic systems for leaks and pressure; in accordance with manufacturers' recommendations, company policy and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5346.4 *Balance the crane* by hoisting required weight to appropriate radius and locking the swing and counterweights, in accordance with manufacturers' recommendations, engineered drawings, company policy and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5346.5 *Raise the crane* by engaging jacking controls while checking for vibrations, obstructions and strain on power cable, ensuring that the crane is being raised in a balanced and safe manner, in accordance with manufacturers' recommendation and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5346.0 CLIMB CRANES (INTERNAL).../cont'd

U5346.6 *Set and secure the raised crane* by: installing support beams; adjusting wedges; removing the jacks and climbing apparatus; in accordance with manufacturers' recommendations and engineered drawings.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5346.7 *Inspect the raised crane* by checking for obstructions and ensuring the tower is secured in a plumb position, in accordance with manufacturers' recommendations and engineered drawings.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5346.8 *Perform a test run* by: checking that the crane is secure; checking for adequate swing clearance; performing a moment overload test; and recording results in crane log book: in accordance with manufacturers' recommendations, engineered drawings, job site requirements and OHSA.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

Employer's Name	Employer's Signature
_____	_____

U5347.0 MAINTAIN CRANES

GENERAL PERFORMANCE OBJECTIVE

Maintain cranes by: planning and preparing maintenance; lubricating wire ropes; performing basic maintenance on the crane structure and mechanical systems; testing crane functions following repairs; and recording maintenance procedures in the log book.

PERFORMANCE OBJECTIVES

Supervisor's/Trainer's Name (Print)

Apprentice's Name (Print)

SKILLS

U5347.1 *Plan and prepare crane maintenance* by, reading and interpreting manufacturer's manuals, operations and maintenance log book, Construction Safety Association of Ontario manuals, the OHSA, WHMIS, and company policy; communicating with authorized maintenance personnel; to identify, determine and select approved replacement components, recommended maintenance procedures, types and methods for lubrication, and required tools, so that crane maintenance can be performed safely and efficiently.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5347.2 *Lubricate wire rope* by using oilers and pneumatic pressurized tools, in accordance with manufacturers' recommendations, OHSA and company policy.

Date Completed

Supervisor's Signature

Apprentice's Signature

U5347.0 MAINTAIN CRANES.../cont'd

U5347.3 *Maintain crane structure and components* by: tightening bolts; replacing wedges, pins and cotter keys; inspecting guard rails and crane base shoes; and cleaning, priming and painting corroded areas; in accordance with manufacturers' recommendations and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5347.4 *Maintain mechanical systems and components* by: adjusting brakes rollers and cables; replacing belts; servicing breathers; topping up fluids; and greasing fittings and open gears; in accordance with manufacturers' recommendations and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5347.5 *Test crane functions following repairs* including controls and limit switches by: performing 'break in' procedures; and checking that the limit switches, swing, boom, hoist, moment, trolley and travel functions are operating; in accordance with manufacturers' recommendations and company policy.

Date Completed	Supervisor's Signature	Apprentice's Signature
_____	_____	_____

U5347.0 MAINTAIN CRANES.../cont'd

U5347.6 *Record maintenance procedures and repairs, by completing the crane log book concisely, accurately and legibly, in accordance with OHSA and company policy.*

Date Completed

Supervisor's Signature

Apprentice's Signature

Employer's Name

Employer's Signature

AREAS OF
COMPETENCY
STANDARDS

COMPETENCY ANALYSIS PROFILE
TOWER CRANE OPERATOR ON-THE-JOB TRAINING

SKILLS

<p>PROTECT SELF AND OTHERS</p> <p>U5340.0</p>	<p>Wear and maintain personal protective clothing and equipment</p> <p>U5340.1</p>	<p>Operate the crane in a safe manner</p> <p>U5340.2</p>	<p>Maintain a safe work environment</p> <p>U5340.3</p>	<p>Operate crane safely near high voltage equipment</p> <p>U5340.4</p>	<p>Report crane contact with high voltage</p> <p>U5340.5</p>
	<p>Inspect and service machinery guards, covers and warning labels</p> <p>U5340.6</p>	<p>Perform emergency rescues</p> <p>U5340.7</p>	<p>Ascend and descend the crane</p> <p>U5340.8</p>	<p>Operate crane safely in inclement weather</p> <p>U5340.9</p>	<p>Perform recommended fire safety procedures</p> <p>U5340.10</p>
	<p>Secure an unattended crane for short periods</p> <p>U5340.11</p>	<p>Secure an unattended crane for extended periods</p> <p>U5340.12</p>	<p>Interpret and obey signals</p> <p>U5340.13</p>		
<p>CONDUCT PRE-OPERATIONAL INSPECTIONS</p> <p>U5341.0</p>	<p>Read and interpret reference material</p> <p>U5341.1</p>	<p>Perform a daily pre-operational inspection</p> <p>U5341.2</p>	<p>Inspect the crane structure and components</p> <p>U5341.3</p>	<p>Inspect the mechanical systems and components</p> <p>U5341.4</p>	<p>Inspect the electrical systems and components</p> <p>U5341.5</p>
	<p>Inspect the wire rope</p> <p>U5341.6</p>	<p>Inspect the wire rope components</p> <p>U5341.7</p>	<p>Inspect the support structure and conditions</p> <p>U5341.8</p>	<p>Inspect travel tracks and components</p> <p>U5341.9</p>	<p>Perform a function test</p> <p>U5341.10</p>
	<p>Maintain crane log book</p> <p>U5341.11</p>				
<p>PLAN LIFTS</p> <p>U5342.0</p>	<p>Read and interpret reference material</p> <p>U5342.1</p>	<p>Participate in pre-operational meetings</p> <p>U5342.2</p>	<p>Communicate with site supervisor and other trade personnel</p> <p>U5342.3</p>	<p>Determine load weights and gross loads</p> <p>U5342.4</p>	<p>Determine crane capacity</p> <p>U5342.5</p>

SKILLS

	Select crane configuration and attachments U5342.6	Prepare tor lift using crane equipped with personnel buckets U5342.7	Prepare tor specialty lifts and operations U5342.8		
PERFORM RIGGING U5343.0	Read and interpret rigging reference material U5343.1	Inspect rigging equipment U5343.2	Inspect lifting devices U5343.3	Select rigging equipment U5343.4	Perform rigging and slinging techniques U5343.5
	Maintain and store rigging equipment U5343.6				
OPERATE HAMMERHEAD CRANES U5344.0	Read and interpret manufacturers' operating manuals U5344.1	Program the on board computer system U5344.2	Perform pre-operational checks U5344.3	Trolley the carriage without a load U5344.4	Trolley the carriage with a load U5344.5
	Swing (slew) the jib without a load U5344.6	Swing (slew) the jib with a load U5344.7	Raise and lower the hook without a load U5344.8	Raise and lower the hook with a load U5344.9	Travel the crane without a load U5344.10
	Travel the crane with a load U5344.11	Trolley, swing (slew), hoist and travel the crane without a load U5344.12	Trolley, swing (slew), hoist and travel the crane with a load U5344.13		
OPERATE LUFFER CRANES U5345.0	Read and interpret manufacturers' operating manuals U5345.1	Program the on board computer system U5345.3	Perform pre-operational checks U5345.4	Boom (luff) up and down without a load U5345.5	Boom (luff) up and down with a load

AREAS OF
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COMPETENCY ANALYSIS PROFILE
TOWER CRANE OPERATOR ON-THE-JOB TRAINING

SKILLS

	Swing (slew) the jib without a load U5345.6	Swing (slew) the jib with a load U5345.7	Raise and lower the hook without a load U5345.8	Raise and lower the hook with a load U5345.9	Boom (luff) up and hoist down simultaneously without a load U5345.10
	Boom (luff) up and hoist down simultaneously with a load U5345.11	Boom (luff) down and hoist up simultaneously without a load U5345.12	Boom (luff) down and hoist up simultaneously with a load U5345.13	Travel the crane without a load U5345.14	Travel the crane with a load U5345.15
	Boom (luff), swing (slew), hoist and travel the crane without a load U5345.16	Boom (luff), swing (slew), hoist and travel the crane with a load U5345.17			
CLIMB CRANES (INTERNAL) U5346.0	Read and interpret climbing reference material U5346.1	Prepare to climb the crane U5346.2	Assemble climbing apparatus and components U5346.3	Balance the crane U5346.4	Raise the crane U5346.5
	Set and secure the raised crane U5346.6	Inspect the raised crane U5346.7	Perform a test run U5346.8		
MAINTAIN CRANES U5347.0	Plan and prepare crane maintenance U5347.1	Lubricate wire rope U5347.2	Maintain crane structure and components U5347.3	Maintain mechanical systems and components U5347.4	Test crane functions following repairs U5347.5
	Record maintenance procedures and repairs U5347.6				