

Occupational Analyses Series

IRONWORKER (GENERALIST)

Occupational Standards
Division

Occupational and Career
Information Branch

OTTAWA/HULL

Division des normes professionnelles

Direction générale des informations
sur les professions et les carrières

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OTHER RELATED OCCUPATIONAL TITLES

This analysis covers tasks performed by an ironworker (generalist) whose occupational title has been identified by some provinces and territories of Canada under the following names:

Ironworker
Ironworker Fabrication
Ironworker Reinforcing Rebar
Ironworker Structural
Structural Steel Erector

LIST OF PUBLISHED OCCUPATIONAL ANALYSES *

Aircraft Gas Turbine Engine Repair and Overhaul Technician (1992)

Aircraft Structural Repair Technician (1992)

Aquaculture Technician (1977)

Arts Administrator (1989)

Automotive Service Technician (1990)

Automotive Technician - Automatic Transmission (1990)

Automotive Technician - Electrical/Electronics (1992)

Automotive Technician - Engine Repair and Fuel Systems (1989)

Automotive Technician - Front-End (1989)

Automotive Technician - Manual Transmission, Driveline and Brakes (1990)

Baker (1991)

Blaster (Surface) (1987)

Boilermaker (1978)

Bricklayer (1993)

Cabinetmaker (1992)

Carpenter (1993)

Cement Finisher (1983)

Construction Electrician (1990)

Cook (1991)

Electrical Mechanic (1981)

Electronics Technician Vol. I (1986)
(Video Equipment)

Electronics Technician Vol. II (1986)
(Audio Equipment)

Electronics Technician Vol. III (1986)
(Computer Equipment)

Electronics Technician Vol. IV (1986)

* **Red Seal analyses are indicated in bold.**

(Office Equipment)
Electronics Technician Vol. VI (1986)
(Communication Equipment)

Electronics Technician Vol. VII (1986)
(Signaling Equipment)

Electronics Technician Vol. VIII (1986)
(Navigation Equipment)

Electronics Technician Vol. IX (1986)
(Video Game Equipment)

Electronics Technician Vol. X (1987)
(CADD Equipment)

Electronics Technician Vol. XI (1987)
(CAM Equipment)

Electronics Technician Vol. XII (1987)
(Robotics Equipment)

Electronics Technician Vol. XIII (1987)
(Biomedical and Laboratory Equipment)

Electronics Technician Vol. XIV (1987)
(Industrial Process-Control Equipment)

Farm Equipment Mechanic (1981)

Floorcovering Installer (1991)

Glazier (1986)

Hairstylist (1992)

Heating (Gas and Oil) Servicer - Commercial and Industrial (1978)

Heavy Equipment Mechanic (1987)

Heavy Equipment Operator (1983)

Industrial Electrician (1987)

Industrial Instrument Mechanic (1988)

Industrial Mechanic (Millwright) (1988)

Insulator (Heat and Frost) (1993)

Ironworker (Generalist) (1993)

Lineman (1988)

Logistics (1992)

Machinist (1992)

Major Electrical Appliance Repairer (1984)

Mobile Crane Operator (1992)
Motor Vehicle Body Repairer (1989)
Motor Vehicle Repairer (Truck and Transport) (1983)
New Home Builder and Residential Renovation Contractor (1992)
Oil and Solid Fuel Heating Mechanic (1986)
Painter and Decorator (1993)
Plumber (1989)
Power Engineer (1986)
Refrigeration and Air-Conditioning Mechanic (1989)
Rofer (1991)
Sheet Metal Worker (1990)
Sprinkler System Installer (1986)
Steamfitter-Pipefitter (1989)
Tool and Die Maker (1992)
Welder (1989)

REQUESTS FOR THESE PUBLICATIONS SHOULD BE FORWARDED TO:

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FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources Development Canada sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;
- to identify those tasks that are performed by skilled workers in every province and territory;
- to develop instruments for use in the preparation of interprovincial standards "Red Seal" examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility, in Canada, of trainees and skilled workers; and
- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a knowledgeable consultant who, with the assistance of a committee of industry experts in ironworking, identifies all the tasks performed in the occupation.

The draft is then assigned to occupational analysts at Human Resources Development Canada for review, translation and edit to ensure conformity with the nationally approved format.

The analysis is forwarded to provincial/territorial authorities for validation by specialists in the field. Their recommendations are assessed and incorporated into the final draft which also includes the identification of the common core tasks performed in the occupation.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate the understanding of the nature of the occupation, the work performed is divided into the following divisions:

- A. **BLOCK** - is the largest division within the analysis and reflects a distinct operation relevant to the occupation.
- B. **TASK** - is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".
- C. **SUB-TASK** - is the smallest division into which it is practical to sub-divide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Supporting Knowledge & Abilities

The element of skill and knowledge that an individual must acquire to perform the task adequately.

Trend

Any shifts or changes in technology that affect the sub-tasks are identified under this heading.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization Sub-Committee developed a method for the validation of the national Red Seal occupational analyses.

A draft of the analysis is sent to all provinces/territories for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the national occupational analyses identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Red Seal examinations.

DEFINITIONS

YES:	the sub-task is performed.
NO:	the sub-task is not performed.
BLOCK %:	the average time a worker spends performing each block in a given year in relation to other blocks of the analysis, taking into consideration the complexity (importance plus difficulty) of the block.
TASK %:	the average time a worker spends performing each task in relation to other tasks within the block, taking into consideration the complexity (importance plus difficulty) of the task.
NV:	<u>Not Validated</u> by the province/territory.
ND:	<u>Not Designated</u> in that province/territory.

COMMON CORE

The criteria for determining common core are dependant on the performance of sub-tasks. If 70% of the responding jurisdictions (excluding NVs and NDs) perform the sub-task, it shall be considered common core.

In the analysis, Block A is reserved for safety practices. Since safety practices are a mandatory feature of all occupations, it is considered common core and ratings are not required.

Interprovincial Red Seal examinations are based on the common core identified through this validation process.

PERCENTAGE RATINGS (APPENDIX "C")

In this appendix, blocks are assigned provincial and territorial percentage ratings. These figures represent the percentage of time a worker spends performing all tasks within the block, in a given year.

Tasks are also assigned a percentage rating which represents the approximate time spent by a worker on each task in relation to other tasks within the block.

The percentage totals, as submitted by the provinces/territories, equal 100% as do the national averages.

BLOCK PERCENTAGES (APPENDIX "D")

The graph depicts the national percentages assigned to blocks in the analysis, except for Block A which is not rated.

SCOPE OF ANALYSIS

An ironworker (generalist) is a skilled tradesperson who has a broad range of skills and knowledge which enable him/her to perform a variety of job related tasks. These diverse tasks include: erection of curtain wall, structural steel and precast concrete; laying and connecting reinforcing bars and tension cables; installation of ornamental ironwork, conveyors, and robotic equipment; and erection of hoists, derricks and cranes. Ironworkers are also frequently called upon to perform reconstructive work on existing structures such as buildings and bridges. They may also be involved in the demolition and salvage of all types of construction.

A competent ironworker is involved in all facets of the job including planning and coordination of equipment, materials and human resources; construction and demolition of structures; and salvage, storage and inventory of materials and equipment when jobs have been completed. All work must be performed in the context of personal safety for oneself and others during construction and for the end users afterward. Most ironworkers tend to specialize in certain aspects of the practice, such as structural steel erection, reinforcing steel installation, precast concrete erection, post-tensioning of cables, curtain wall finishing, machinery installation, etc.

Because of the size and mass of the construction materials and equipment used in ironworking, cranes and derricks are common and necessary features of the work site. Ironworkers must be thoroughly familiar with the operation of cranes and must be able to safely rig loads and communicate effectively with crane operators at all times.

This analysis covers a broad range of activities performed by ironworkers in Canada. Some of these activities are geographically limited. For example, the "erection of wooden structures" is an activity performed by ironworkers in Saskatchewan in support of the potash industry, and the "assembly of robotic equipment" is largely confined to the manufacturing sectors in Ontario. However, the great majority of the tasks described in this analysis are performed by ironworkers in all parts of Canada.

OBSERVATIONS AND TRENDS ARISING FROM ANALYSIS

The general practice of the ironworker trade has not changed dramatically over the last decade despite some important changes in building construction technology. Thus, while the activities performed by the ironworkers have remained relatively constant, the materials and equipment they work with have undergone a substantial change.

Essentially, every work activity of the ironworker is performed in strict compliance with safe work practices. In almost all cases, the responsibility for safety and safe work practice lies with the individual ironworker. This requires that individuals have extensive knowledge and awareness of the regulations pertaining to their industry and the equipment that they or others operate. This knowledge should begin with company safety policies and operational procedures, and should extend to the relevant municipal by-laws as well as provincial and federal legislations.

There is now a greater emphasis on and requirement for continuing education and training to keep pace with the advances in construction methods, construction materials and safe work practices. Because of the tremendous variety of tasks that they have to perform, ironworkers must be versatile in their knowledge and ability. Continuing education and training are necessary to enable individuals to respond to the diversity job calls which may range from laying of reinforcing bars for an expansive shopping complex to erecting communication towers reaching 100 m and beyond.

The opportunities for ironworkers to become certified will increase in the future. Pressure is being exerted to certify the trade in those provinces that do not currently support ironworker apprenticeship programs leading to certification.

Individuals can and should enter training programs to obtain certification in such areas as drawing reading, post-tensioning, inspection and restoration of aged structures and many other "specialty" areas. Advances in fastening methods, especially welding, also demand constant updating. Welding procedures such as tungsten-inert gas welding (TIG), gas metal arc welding (GMAW) and flux core arc welding (FCAW), formerly regarded as specialty techniques, are becoming more commonly used. As the list of weldable surfaces continues to expand, knowledge of both the technique and the appropriate application are required. Whereas in some jurisdictions ironworkers are being cross-trained as welders, in others, specific provisions restrict welding tasks to certified welders.

Increasingly, ironworkers are working with prefabricated and/or modular construction materials which carry a factory finish. This has led to the necessity for greater care and attention during storage, moving and erection of such materials. Rigging methods and devices in particular have evolved to accommodate these innovations. In erecting structures with prefabricated materials, ironworkers are frequently called upon to read, interpret and apply manufacturers' specifications for assembly and erection.

The increasing prevalence of prefabricated materials and modular components has resulted in a substantial decrease in on-site fabrication work. Instead, the emphasis has shifted to knowledge of the products of various manufacturers and how these products are assembled and erected.

Ironworkers require a thorough knowledge of cranes and hoisting operations. The ability to read and interpret crane charts and load sizes enables the ironworker to work safely and assess the potential for safety hazards.

ANALYSIS

BLOCK A SAFETY, ACCIDENT PREVENTION AND FIRST AID

Task 1 Practices safety and maintains a safe work environment.

Trend: Greater emphasis on individual worker knowledge and responsibility.

	Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
1.01	Identifies and uses safety equipment.	knowledge of safety equipment	hearing protection, personal protective equipment, guards/shields, protective clothing
1.02	Complies with safety regulations.	knowledge of federal, provincial and municipal standards and regulations applicable to the trade knowledge of Workers' Compensation Board regulations (WCB)	
1.03	Maintains a tidy and safe workplace.	knowledge of basic housekeeping routines	
1.04	Assesses potential workplace hazards.	knowledge of potential work hazards on-site and adjacent perimeter areas for public safety	
1.05	Handles hazardous materials.	knowledge of Workplace Hazardous Materials Information System (WHMIS) regulations and practice	
1.06	Applies first aid and cardiopulmonary resuscitation (CPR).	knowledge of basic first aid and CPR	
1.07	Knows and applies company safety regulations.	knowledge of company safety regulations	
1.08	Installs, maintains and inspects safety equipment.	knowledge of fall arrest systems	fall arrest systems (nets, ropes, tie lines, leashes,

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment	
1.09	Uses appropriate fire fighting equipment for type of fire.	knowledge of appropriate fire fighting equipment	fire extinguishers, personal protective equipment
1.10	Wears and uses appropriate personal protective equipment for task.	knowledge of personal protective equipment	dust mask, respirator, hearing protection, safety glasses, protective clothing
1.11	Calibrates and performs routine maintenance on instruments.	knowledge of calibration procedures	transit, level, torques wrenches, wrenches, skidmore

BLOCK B JOB PLANNING AND PREPARATION

Task 2 Plans job in accordance with drawings, work site requirements and specifications.

Trend: A greater awareness and understanding of project management is required.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
2.01	Evaluates job site for hazards, laydown area, crate setting, prefab site, obstructions.	knowledge of communication skills knowledge of interpersonal skills knowledge of safety skills knowledge of common hazards									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
2.02	Shoots elevations. knowledge of mathematical skills knowledge of survey instruments	transit, builder's level, laser levelling devices
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
2.03	Lays out grid lines or checks existing grid lines for proper placement. knowledge of mathematical skills ability to use survey instruments	transit, level, laser levelling devices, plumb bob, chalk, piano wire, tape measure, square level
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND

Task 3 Coordinates delivery and installation of materials and equipment as job progresses.

Trend: Greater use of prefabrication and modularization in industry resulting in elimination of job site work. Delivery and use of materials and equipment must be highly coordinated.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
3.01	Coordinates delivery of materials as job progresses. knowledge of communication skills knowledge of the trade ability to assess job progress	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
3.02	Develops and/or adjusts knowledge of communication skills	

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
construction schedule.				knowledge of organizational skills								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
3.03	Reads and interprets drawings and materials lists.			ability to read and interpret drawings and written instructions								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
3.04	Determines manpower requirements for job.			knowledge of organizational skills								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
3.05	Plans tool and equipment lists for job.			knowledge of tools and equipment pertaining to the job								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
3.06	Prepares shop drawings.			knowledge of basic drafting skills				basic drafting equipment				
				knowledge and awareness of pertinent building codes								
(NOT COMMON CORE)												
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> no	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	

3.07	Prepares field sketches.	knowledge of materials and procedures ability to use survey instruments	basic drafting equipment									
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

3.08	Properly handles and stores equipment and materials at job site.	knowledge of equipment and materials knowledge of appropriate storage practices										
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

BLOCK C RIGGING AND MACHINERY MOVING

Task 4 Prepares wire and fibre ropes and tackle.

Trend: Greater use of nylon slings and chokers to protect factory finishes on construction materials.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
4.01	Splices and/or knots wire and fibre ropes. knowledge of breaking strengths	fid, marline spike, cable clips

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
	<p>knowledge of safe working capacities</p> <p>knowledge of knots</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND</p>	
4.02	<p>Reeves or laces blocks.</p> <p>knowledge of reeving and lacing methods and their advantages and applications</p> <p>knowledge of frictions and weights</p> <p>knowledge of knots</p> <p>knowledge of methods to determine mechanical advantage</p>	<p>Crescent wrench, cable clips, ratchet wrench</p>
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND</p>	
4.03	<p>Inspects, measures and cuts wire and fibre rope according to end use.</p> <p>knowledge of methods of inspecting rope</p> <p>knowledge of visual signs of deterioration</p> <p>knowledge of end uses</p>	<p>tape measure, cutting torch, cable cutters, cutoff saw, electrician's tape, material for seizing/whipping</p>
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND</p>	
4.04	<p>Selects correct fibre or wire rope and blocks according to job requirements.</p> <p>knowledge of safe working capacities</p> <p>knowledge of breaking strengths</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u></p>	

Sub-tasks				Supporting Knowledge & Abilities							Tools & Equipment		
4.05	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
	Selects and installs correct cable clip with appropriate spacing.				knowledge and application of spacing formula							cable clips, wrenches	
					knowledge of clip varieties and applications								
					knowledge of safety factors								
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
4.06													
	Selects appropriate turnbuckles.				knowledge of load safety factors								
					knowledge of appropriate formulae								
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
4.07													
	Splices an eye in wire or fibre rope.				knowledge of various eye splicing techniques and their proper uses							fid, marline spike, cable clips, wire cutters, compression fitting	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
4.08													
	Fabricates and installs guy wires.				knowledge of safe working practices (SWP)							turnbuckles, thimbles, cable clips, cable cutters, torch, plumb lines, buffalo grips, magnus or rolling hitch, come-alongs	
					knowledge of breaking strength								
					knowledge of clip spacing								
					knowledge of thimble size								
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	

4.09 Assembles and operates block and tackle. knowledge of knots and their proper applications chokers, U-bolts

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

4.10 Secures equipment/loads into temporary position with lashings knowledge of SWP knowledge of use of clips, turnbuckles and shackles wire rope, clips, turnbuckles, adjustable wrench, ratchet wrenches

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 5 Rigs and moves loads.

Trend: Greater emphasis on engineered lifts. Hoisting equipment is bigger and capable of hoisting larger loads.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
5.01 Determines weight of load and identifies appropriate hoisting equipment.	knowledge of SWP knowledge of hoisting equipment	dynamometer, crane									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
5.02 Determines placement of load.	knowledge of planning and preparation ability to read and interpret drawings										
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
5.03 Selects and operates appropriate moving or hoisting apparatus.	<p>knowledge of SWP</p> <p>knowledge of breaking strengths</p> <p>knowledge of safe operation of moving equipment</p> <p>knowledge and interpretation of crane charts</p>	<p>come-alongs, Tirsors, hydraulic jacks, chain block hoist, tugger, fork lift, stinger, rollers, air pallets, bents, form boom, dunnage</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
5.04 Selects appropriate rigging for application.	<p>knowledge of riggings</p> <p>knowledge of SWP</p> <p>knowledge of breaking strength</p>	<p>spreader bar, rigging equipment</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
5.05 Identifies appropriate hoisting points and rigs load.	<p>knowledge of hoisting points</p> <p>knowledge of safe rigging practices</p>	<p>rigging equipment</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
5.06 Directs crane operator to raise, move or lower load.	<p>knowledge of crane signals</p>										
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
5.07 Operates boom trucks and carry-deck cranes.	knowledge of equipment operation procedures	boom trucks, carry-deck cranes
(NOT COMMON CORE)		
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> no
	<u>AB</u> no	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND

BLOCK D ERECTION OF HOISTING AND CONVEYANCE EQUIPMENT

Task 6 Assembles, erects, jumps and dismantles tower cranes.

Trend: Tower cranes are bigger, heavier and capable of lifting larger loads.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
6.01 Off-loads, inventories and lays out components of tower crane.	knowledge of erection sequence familiarity with variety of tower cranes knowledge of SWP knowledge of suitable site elevations knowledge of crane components knowledge of crane signals knowledge of safe rigging practices	mobile crane, fork lift, chokers, tag lines
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no
	<u>NB</u> ND	<u>PQ</u> NV
	<u>ON</u> yes	<u>MA</u> yes
		<u>SK</u> yes
		<u>AB</u> yes
		<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
6.02 Levels and plumbs base section of the mast.	<p>knowledge of erection procedures</p> <p>knowledge of hand tools</p> <p>knowledge of nature of reinforced concrete</p> <p>knowledge of SWP</p>	transit, level, shims, tag lines									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.03 Installs jacking section.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	strut offset wrench, spud wrench, hammer wrench, multiplier, torque wrenches, tag lines, rigger's belt									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.04 Erects and secures mast.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, guylines, sledgehammers, tag lines									

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
				knowledge and use of hydraulic jacks								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND	
6.05	Installs turntable section on mast.	knowledge of and familiarity with variety of tower cranes knowledge of erection sequence knowledge of SWP knowledge of crane components knowledge of crane signals knowledge of safe rigging practices						come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines				
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND	
6.06	Installs and secures counterweight section (without counterweights).	knowledge of and familiarity with variety of tower cranes knowledge of erection sequence knowledge of SWP knowledge of crane components knowledge of crane signals knowledge of safe rigging practices						come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines				
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND	

Sub-tasks		Supporting Knowledge & Abilities	Tools & Equipment								
6.07	Installs trolley and pennant lines on boom.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines</p>								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.08	Installs and secures boom.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines</p>								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.09	Installs and secures counterweights.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p>	<p>come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines</p>								

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
6.10	Inspects and torques bolts to manufacturer's specifications.			knowledge of and familiarity with variety of tower cranes						torque wrenches, multiplier		
				knowledge of erection sequence								
				knowledge of SWP								
				knowledge of crane components								
				knowledge of crane signals								
				knowledge of safe rigging practices								
6.11	Reeves block and sheaves along mast and boom.			knowledge of and familiarity with variety of tower cranes						cable clips, adjustable wrenches		
				knowledge of erection sequence								
				knowledge of SWP								
				knowledge of crane components								
				knowledge of crane signals								
				knowledge of safe rigging practices								

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
6.12 Installs and adjusts trolley travel cable.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	adjustable wrenches									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.13 Ensures that tower crane has power.	ability to co-ordinate work with other tradespersons										
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.14 Performs load tests on tower crane and adjusts limit switches to manufacturer's specifications.	<p>knowledge of and familiarity with variety of tower cranes</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of safe rigging practices</p> <p>ability to co-ordinate work with other tradespersons</p>	slings, chokers, screwdriver									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
6.15	Performs final visual inspection of all tower crane components.	knowledge of and familiarity with variety of tower cranes											
		knowledge of erection sequence											
		knowledge of SWP											
		knowledge of crane components											
		knowledge of crane signals											
		knowledge of safe rigging practices											
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.16	Jumps tower crane using built-in jacking system.	knowledge of and familiarity with variety of tower cranes								hydraulic jacks, wedges, sledgehammers			
		knowledge of erection sequence											
		knowledge of SWP											
		knowledge of crane components											
		knowledge of crane signals											
		knowledge of safe rigging practices											
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
6.17	Jumps tower crane by adding additional mast sections.	knowledge of and familiarity with variety of tower cranes								come-alongs, ring hammer, multiplier, torque wrenches, pins, hammer wrench, sledgehammers, tag lines			
		knowledge of erection sequence											
		knowledge of SWP											
		knowledge of crane components											

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
				knowledge of safe rigging practices								
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
7.02	Installs spider on mast of guy derrick or stiff legs on stiffleg derrick.			knowledge of erection sequence knowledge of SWP knowledge of crane signals ability to use hand tools						adjustable wrenches, spud wrench, drift pins, sledgehammers, crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
7.03	Positions and secures hoist drum.			knowledge of erection sequence knowledge of SWP knowledge of crane signals ability to use hand tools						hammer drill, anchor bolts, appropriate wrenches, crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
7.04	Levels and plumbs base section of derrick.			knowledge of levelling procedures						transit, hand level, shims, crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
7.05	Installs boom cadle bridle on mast.			knowledge of erection sequence						adjustable wrenches, ratchet wrench, tag lines		

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
7.12 Dismantles derrick at end of construction.	knowledge of dismantling sequence knowledge of SWP knowledge of crane signals ability to use hand tools	crane, slings, ropes, sledgehammers, dunnage, wrenches									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Task 8 Assembles and dismantles conventional and hydraulic cranes.

Trend: Conventional cranes are larger, with greater hoisting capabilities.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
8.01 Off-loads, inventories and lays out crane components.	knowledge of and familiarity with various conventional cranes knowledge of erection sequence knowledge of and familiarity with variety of equipment in this area knowledge of SWP knowledge of suitable site elevations knowledge of crane components knowledge of crane signals knowledge of safe rigging practices	slings, chokers, tag lines, crane, dunnage									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
8.02 Prepares site for crane assembly.	<p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of suitable site elevations</p> <p>ability to use hand tools</p>	site preparation equipment									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
8.03 Levels crane and sets outriggers, if necessary.	<p>knowledge of and familiarity with various conventional and hydraulic cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of and familiarity with variety of equipment in this area</p> <p>knowledge of SWP</p> <p>knowledge of suitable site elevations</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	dunnage, level									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
8.04 Installs counterweights, if necessary.	<p>knowledge of and familiarity with various conventional cranes</p> <p>knowledge of erection sequence</p>	crane									

Sub-tasks		Supporting Knowledge & Abilities	Tools & Equipment								
		<p>knowledge of and familiarity with variety of equipment in this area</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
8.05	Assembles and attaches boom to heel section on conventional crane.	<p>knowledge of and familiarity with various conventional cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of and familiarity with variety of equipment in this area</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	sledgehammers								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
8.06	Attaches jib to boom, if necessary.	<p>knowledge of and familiarity with various conventional and hydraulic cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of and familiarity with variety of equipment in this area</p>	sledgehammers								

Sub-tasks		Supporting Knowledge & Abilities	Tools & Equipment
		knowledge of SWP	
		knowledge of crane components	
		knowledge of crane signals	
		knowledge of safe rigging practices	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND
<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
			<u>NT</u> ND
			<u>YK</u> ND
8.07	Reeves boom cable bridle on conventional crane.	knowledge of and familiarity with various conventional cranes	
		knowledge of erection sequence	
		knowledge of reeving procedures	
		knowledge of and familiarity with variety of equipment in this area	
		knowledge of SWP	
		knowledge of crane components	
		knowledge of crane signals	
		knowledge of safe rigging practices	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND
<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
			<u>NT</u> ND
			<u>YK</u> ND
8.08	Attaches pennant lines to bridle on conventional crane.	knowledge of and familiarity with various conventional cranes	sledgehammers
		knowledge of erection sequence	
		knowledge of and familiarity with variety of equipment in this area	

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment		
8.09	Reeves cable to main load block.											adjustable wrenches, ratchet wrench
8.10	Attaches whip line to headache ball, if necessary.											adjustable wrenches, ratchet wrench

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
	<p>knowledge of and familiarity with variety of equipment in this area</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND no ND NV yes yes yes yes yes ND ND</p>	
8.11	<p>Performs final visual inspection of crane components.</p> <p>knowledge of and familiarity with various conventional and hydraulic cranes</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND no ND NV yes yes yes yes yes ND ND</p>	
8.12	<p>Directs crane operator to raise boom.</p> <p>knowledge of crane signals</p> <p>knowledge of SWP</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND</p>	
8.13	<p>Directs operator to lower boom when work has been completed.</p> <p>knowledge of crane signals</p> <p>knowledge of SWP</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND</p>	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
8.14 Dismantles crane.	<p>knowledge of and familiarity with various conventional and hydraulic cranes</p> <p>knowledge of dismantling sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>crane, slings, chokers, tag lines, dunnage, sledgehammers, ratchet wrench, adjustable wrenches</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Task 9 Assembles, erects, jumps and dismantles material and personnel hoists.

Trend: Hoists are getting lighter and more compact.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
9.01 Off-loads, inventories and lays out components of a hoist.	<p>knowledge of and familiarity with a variety of material and personnel hoisting devices</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of suitable site elevations</p> <p>knowledge of hoist components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>dunnage, crane, fork lift, chokers, tag lines</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

	Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
9.02	Evaluates condition and suitability of base.	knowledge of the nature of reinforced concrete	
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
		<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND	<u>YK</u> ND
9.03	Installs anchor bolts, if necessary.	knowledge of welding and cutting procedures ability to select proper bolts and anchors	welding and cutting equipment, hammer drill
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
		<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND	<u>YK</u> ND
9.04	Levels, aligns and secures base section on foundation.	knowledge of use of hand tools knowledge of levelling procedures	level, shims, rigger's belt
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
		<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND	<u>YK</u> ND
9.05	Applies grout between base and foundation, where required.	ability to prepare and apply grout	trowel, mixing container, grout
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
		<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> no	<u>BC</u> yes
		<u>NT</u> ND	<u>YK</u> ND
9.06	Assembles and bolts sections of hoist tower on the ground.	knowledge of erection sequence knowledge of hoist components knowledge of SWP	torque wrenches, adjustable wrenches, spud wrench
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
		<u>MA</u> yes	<u>SK</u> yes
		<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment	
9.07	Attaches guide rails, if necessary.	knowledge of hoist components								torque wrenches, adjustable wrenches, spud wrench	
		knowledge of SWP									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
9.08	Rigs tower section and signals the operator to hoist into place.	knowledge of hoist components								crane, slings, tag lines	
		knowledge of erection sequence									
		knowledge of SWP									
		knowledge of crane signals									
		knowledge of safe rigging practices									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
9.09	Aligns and secures tower to base section.	knowledge of SWP								crane, slings, impact wrench, tag lines	
		knowledge of alignment procedures									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
9.10	Installs tie-ins to existing structure.	knowledge of welding and cutting procedures								hammer drill, welding equipment, cutting torch	
		ability to select proper bolts									
		ability to select proper anchors									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
9.11 Directs hoisting and installs cathead on top of hoist tower.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	crane, tag lines, chokers, slings, torque wrenches, impact wrench									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
9.12 Installs electric hoisting device.	<p>knowledge of SWP</p> <p>knowledge of hoist components</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p> <p>knowledge of erection sequence</p>	crane, tag lines, chokers, slings									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
9.13 Attaches wire rope cable on hoist tower drum.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	crane, tag lines, chokers, slings									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities	Tools & Equipment								
9.14	Installs lift platform on tower.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	crane, tag lines, chokers, slings								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
9.15	Installs cable through blocks and cathead and attaches to lifting platform.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
9.16	Installs counterweights, if necessary.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
9.17	Installs gates or doors, where appropriate.	knowledge of hoist components								welding and cutting equipment, hammer drill			
		knowledge of welding and cutting											
		knowledge of proper use of hammer drills											
		knowledge of anchors											
		knowledge of SWP											
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>		
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND		
9.18	Installs telephone, sound or light signalling system.	knowledge of procedures to install signalling system											
		knowledge of SWP											
		knowledge of hoist components											
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>		
ND	ND	yes	ND	NV	yes	no	yes	no	yes	ND	ND		
9.19	Conducts visual inspection of all components.	knowledge of hoist components											
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>		
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND		
9.20	Conducts load test and adjusts limits to manufacturer's specifications.	ability to operate hoist											
		ability to read and interpret charts											
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>		
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND		

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
9.21 Adds additional sections as building progresses.	<p>knowledge of hoist components</p> <p>knowledge of erection sequence</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>crane, tag lines, chokers, slings, torque wrenches, sledgehammers, rigger's belt</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
9.22 Dismantles hoist when building is complete.	<p>knowledge of dismantling sequence</p> <p>knowledge of hoist components</p> <p>knowledge of techniques for storing hoists and ropes</p> <p>knowledge of SWP</p> <p>knowledge of crane signals</p> <p>knowledge of safe rigging practices</p>	<p>crane, tag lines, chokers, slings, torque wrenches, sledgehammers, rigger's belt, cutting equipment</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Task 10 **Installs support structures, framework and related structural and mechanical equipment for conveying systems and material handling systems.**

Trend: Components are more often preassembled; less emphasis on field fabrication; greater complexity of conveyance systems due to inclusion of computer-aided manufacturing; organization of work more systematized.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
10.01 Prepares job site for laydown areas, preassembly areas, storage areas, access, etc.	knowledge of job sequence and requirements	dunnage, site preparation equipment
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND
10.02 Off-loads and inventories equipment, components and materials.	knowledge of hoisting signals knowledge of rigging procedures knowledge of materials and components knowledge of SWP knowledge of care and handling of finished materials	fork lift, crane, rigging equipment, rigger's belt, dunnage
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND
10.03 Identifies, sorts and properly stores components and material in accordance with job progress requirements.	ability to identify components knowledge of job sequence knowledge of proper storage environment ability to assess suitability of storage areas	fork lift, crane, rigging equipment, dunnage, rigger's belt
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
10.04	Lays out grid lines and shoots elevations.	transit, builder's level, survey equipment, plumb bob, chalk
	knowledge of survey procedures and use of equipment	
	ability to read and interpret drawings	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
10.05	Rigs components and support systems according to application.	fork lift, crane, rigging equipment, dunnage, rigger's belt
	knowledge of various rigging applications	
	ability to improvise within safe trade practice	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
10.06	Assembles and installs support systems where required according to specifications.	welding and cutting equipment, hand tools, power tools
	knowledge of welding and cutting procedures	
	ability to read and interpret drawings	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
10.07	Assembles and installs conveying components according to specifications.	adjustable wrenches, spud wrench, come-alongs, Tifors, sledgehammers, fork lift, crane, rigging equipment, dunnage, rigger's belt, hand tools, power tools, welding and cutting equipment
	knowledge of conveyer components	
	knowledge of erection sequence	
	knowledge of installation procedures	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u>	

Sub-tasks				Supporting Knowledge & Abilities							Tools & Equipment		
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
10.08	Assembles and installs drive components and other mechanical equipment according to specifications.				knowledge of drive components and assembly procedures ability to read and interpret drawings							rigger's belt, welding and cutting equipment	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
10.09	Sets components to proper elevation and alignment.				ability to use surveying equipment							rigger's belt, transit, builder's level, survey equipment, plumb bob, chalk	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
10.10	Connects all drive assembly components.				knowledge of connection procedures ability to read and interpret drawings							rigger's belt, hand tools, power tools, welding and cutting equipment	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
10.11	Installs safety system, such as limit switches, guards, cages, shut-offs, etc., according to specifications and regulations.				knowledge of manufacturer's specifications and local regulations ability to read and interpret drawings							rigger's belt, hand tools, power tools, welding and cutting equipment	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	

10.12	Performs visual inspection of all completed work.	knowledge of standards knowledge of SWP										
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
10.13	Performs test run and troubleshoots conveyance and safety systems.	knowledge of components and their interactive function										
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
10.14	Adjusts components, as necessary.	knowledge of components and their interactive function	hand tools, power tools, welding and cutting equipment									
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
10.15	Conducts final inspection of all completed work.	knowledge of standards knowledge of SWP										
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

BLOCK E ERECTION OF STRUCTURAL IRONWORK

Task 11 Erects structural steel framework for buildings, bridges and towers.

Trend: Larger and heavier structures are being erected with larger equipment. There is a greater emphasis on worker safety and adherence to seismic specifications.

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
11.01	Prepares job site for storage of material.	knowledge of erection sequence								dunnage, site preparation equipment			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
11.02	Off-loads, identifies and sorts steel members and other construction materials.	knowledge of erection sequence								dunnage, crane, tag lines, chokers,			
		knowledge of hoisting signals								connecting bar,			
		knowledge of SWP								spreaders, shackles,			
		knowledge of breaking strengths								hooks			
		knowledge of safe rigging practices											
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
11.03	Stores material in a safe and orderly manner.	knowledge of erection sequence								dunnage, crane, tag lines, chokers,			
										connecting bar,			
										spreaders			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
11.04 Hooks on to structural member.	knowledge of safe rigging practices knowledge of breaking strengths	crane, shackles, tag lines, softeners, chokers
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
11.05 Signals operator to lift and spot steel members into position.	knowledge of hoisting signals	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
11.06 Accepts and secures structural members into position.	knowledge of hoisting signals ability to climb	crane, fasteners, rigger's belt, wrenches
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
11.07 Installs temporary bracing, floats and scaffolding, where and as necessary.	knowledge of bracing procedures knowledge of breaking strengths knowledge of clips and spacing knowledge of welding and cutting procedures knowledge of knots ability to select appropriate clips, etc. ability to read and interpret drawings	guylines, turnbuckles, wire rope, wire rope clips, planks, welding equipment, come-alongs, buffalo grips, crane
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
11.08 Aligns components with pins and bolts.	ability to select proper fasteners	sledgehammers, barrel pins, drift pins, reamer, impact wrench
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
11.09 Plumbs up structural framework.	ability to use hand tools	hand tools, plumb bob, transit, level, turnbuckles, guylines
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
11.10 Selects and installs appropriate fasteners according to specifications.	ability to use hand tools	rigger's belt, hand tools
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
11.11 Impacts and torques fasteners to specifications.	knowledge of and ability to use air or power tools	impact wrench, torque wrenches, air hoses, air compressor, hand tools
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
11.12 Welds structural members as required by specifications. Note:	ability to weld	welding and cutting equipment

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
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Involvement in welding is subject to provincial/territorial regulations.

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

11.13	Removes all temporary bracing, floats and scaffolding as well as alignment devices.	knowledge of hand signals knowledge of welding and cutting procedures ability to use hand tools	torch, grinder, block and tackle, tag lines, sledgehammers, crane, hand tools
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

11.14	Performs visual and mechanical inspection of work completed.	knowledge of standards knowledge of and ability to use calibration tools	torque wrenches
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 12 Erects metal storage tanks, bins and hoppers.

Trend: Structural components are larger. Prefabricated components are of better quality.

	<u>Sub-tasks</u>	<u>Supporting Knowledge & Abilities</u>	<u>Tools & Equipment</u>
12.01	Prepares job site.	knowledge of components knowledge of erection sequence	crane, dunnage, site preparation equipment

Sub-tasks		Supporting Knowledge & Abilities	Tools & Equipment
		knowledge of safe rigging practices	
		knowledge of crane signals	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND
<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes
<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.02	Off-loads, identifies and sorts tank, bin or hopper components.	knowledge of hoisting procedures	dunnage, crane, tag lines, chokers, connecting bar, spreaders, plate clamps, equalizer beam
		knowledge of SWP	
		knowledge of breaking strengths	
		knowledge of safe rigging practices	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND
<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes
<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.03	Prepares components for assembly and erection.	knowledge of welding and cutting procedures	grinder, torch, buffer, welding and cutting equipment
		knowledge of grinding procedures	
		knowledge of joint preparation	
		knowledge of SWP	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND
<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes
<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.04	Bolts, rivets and welds components together according to specifications.	knowledge of welding and cutting procedures	welding and cutting equipment, wedges, dogs, keys, impact wrench, air compressor, riveting equipment (air or electric)
		knowledge of riveting and bolting practices	
		knowledge of SWP	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>
<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>
<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>

Sub-tasks				Supporting Knowledge & Abilities							Tools & Equipment	
12.05	Erects scaffolding or steel framework, where and as necessary.	knowledge of erection procedures knowledge of SWP knowledge of regulations pertaining to scaffolds knowledge of welding and cutting procedures	crane, tag lines, clips, scaffold brackets, planks, #9 wire, welding and cutting equipment									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
12.06	Attaches rigging devices to components.	knowledge of safe rigging practices	chokers, slings, beams, shackles, plate clamps									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
12.07	Signals hoisting operator to lift and spot components into position.	knowledge of hoisting signals										
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	
12.08	Accepts component at proper elevation and guides into place.	knowledge of construction sequence knowledge of components knowledge of hoisting signals	tag lines, connecting/aligning bar, come-alongs									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
12.09 Secures components temporarily in place with appropriate fastening methods.	<p>knowledge of welding and cutting procedures</p> <p>knowledge of riveting and bolting procedures</p> <p>knowledge of SWP</p>	welding and cutting equipment, come-alongs									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.10 Aligns and levels components.	ability to use hand tools	wedges, level, plumb bob, dogs, keys, rigger's belt, sledgehammers									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.11 Secures components permanently in place by bolting, welding or riveting according to specifications.	<p>knowledge of welding and cutting procedures</p> <p>knowledge of riveting and bolting procedures</p> <p>knowledge of SWP</p> <p>ability to interpret torque charts</p>	welding and cutting equipment, riveting equipment, impact wrench, compressor, torque wrenches									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.12 Seals joints in tanks, bins or hoppers, where specified.	<p>knowledge of welding and cutting procedures</p> <p>ability to apply caulk</p>	caulking gun, welding and cutting equipment									

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
	ability to identify and use specific sealants	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.13	Performs visual inspection and testing where applicable.	knowledge of and ability to perform tests
		testing apparatus
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.14	Removes scaffolding, etc., as work progresses.	knowledge of SWP
		knowledge of welding and cutting procedures
		knowledge of crane signals
		tag lines, crane, welding and cutting equipment
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
12.15	Repairs damage to surfaces where required.	ability to grind and paint
		grinder, paint, paint brushes
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Task 13 Assembles and erects pre-engineered buildings, bridges, silos and similar structures.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
<p><u>Trend:</u> There is a greater variety and availability to pre-engineered structures. Ironworkers are expected to read and interpret manufacturers' instructions for assembly of pre-engineered structures.</p>											
13.01	<p>Prepares job site by planning for laydown areas, storage areas, preassembly areas, access, etc.</p>	<p>knowledge of erection procedures</p> <p>knowledge of SWP</p> <p>ability to read and interpret drawings</p>	<p>site preparation equipment</p>								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.02	<p>Off-loads and inventories equipment, components and materials.</p>	<p>knowledge of materials</p> <p>knowledge of erection sequence</p> <p>knowledge of finishes</p> <p>knowledge of bills of lading</p> <p>knowledge of material lists</p> <p>knowledge of manufacturer's handling specifications</p> <p>ability to identify components</p>	<p>wrecking bar, fork lift, dunnage, hoisting equipment, rigging equipment</p>								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.03	<p>Lays out grid lines and shoots elevations.</p>	<p>knowledge of survey procedures and use of equipment</p> <p>ability to read and interpret drawings</p>	<p>transit, builder's level, survey equipment, plumb bob, chalk</p>								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
13.04	Preassembles components where possible.	knowledge of components knowledge of assembly sequence knowledge of fastening procedures								impact wrench, rigger's belt, hand tools			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.05	Directs operator to hoist components into position.	knowledge of hoisting signals											
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.06	Aligns, levels and plumbs components.	knowledge of erection procedures ability to use surveying equipment								levelling device, squares, tigger, crane, plumb bob, transit, come-alongs, chain block hoist, Tirfors, crowbar			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.07	Torques bolts to secure components in place.	knowledge of torque specifications ability to read and interpret drawings								impact wrench			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
13.08	Installs roofing, cladding	ability to read and interpret drawings								impact wrench, stapler,			

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
and insulation, as required.		screw-guns, drills, utility knife, caulking gun, mastic, crane, vice grip, tin snips, nibbler (also swing stage scaffolding, where required)

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

13.09	Installs man doors, roll-up doors and windows, as required.	ability to read and interpret drawings	impact wrench, stapler, screw-guns, drills, utility knife, caulking gun, mastic, crane, vice grip, tin snips, nibbler (also swing stage scaffolding, where required)
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 14 Assembles and installs curtain walls, window walls, doorways, store fronts, revolving doors, mantraps, etc. in and on buildings.

Trend: Greater prevalence of pre-assembled panel sections assembled with non-traditional materials; increasing use of plastic rather than glass; level of activity increasing, with individual worker more specialized in erection of curtain wall.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment	
14.01	Prepares job site by planning laydown areas, assembly areas, cranes location, etc.	knowledge of job sequence and requirements	dunnage, site preparation equipment

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
14.02	Off-loads, identifies and sorts components, equipment and materials.			knowledge of hoisting signals						fork lift, crane, rigging equipment		
				knowledge of rigging procedures								
				knowledge of materials and components								
				knowledge of SWP								
				knowledge of care and handling of finished materials								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
14.03	Measures and marks layout for installation according to specifications and erection sequence.			ability to read and interpret drawings						transit, laser levelling devices, chalk line, tape measure, swing stage		
				ability to use tools								
				ability to assemble and safely operate swing stage								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
14.04	Verifies correct location of embedments, if necessary.			knowledge of layout material						transit, laser levelling devices, chalk line, swing stage		
				ability to read and interpret drawings								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
14.05 Drills holes in existing structures, as required.	knowledge of layout material ability to read and interpret drawings	drills
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
14.06 Installs support clips on structure, as required or specified.	knowledge of welding and cutting procedures	ratchet wrench, welding and cutting equipment, torch, C-clamps
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
14.07 Assembles sections to be installed, as necessary.	knowledge of installation procedures knowledge of manufacturer's specifications ability to read and interpret drawings	screw-guns, hand drills, pop riveter, cutoff saw, file
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
14.08 Hoists assembled sections into predetermined location.	knowledge of hoisting signals knowledge of SWP knowledge of safe rigging practices	electric hoist, crane, pallet lifter, A-frame hoisting device
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
14.09 Interlocks section with standing sections, as necessary.	knowledge of manufacturer's specifications	glazing bar, come-alongs, C-clamps

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment	
		ability to read and interpret drawings									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.10	Aligns and levels assembled sections.	knowledge of erection procedures ability to use surveying equipment								piano wire, chalk line, builder's level, plumb line, transit	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.11	Fastens the assembly.	knowledge of welding and cutting procedures knowledge of fastening methods ability to read and interpret drawings								welding and cutting equipment, ratchet wrench, hand tools	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.12	Applies back-beading to curtain wall.	knowledge of caulking and sealant procedures ability to use hand tools								caulking gun, putty knife	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.13	Installs glass, plastic or other material in prepared framework, cutting material to size, if	knowledge of glazing skills awareness of variation in materials								glazing bar, plastic spreaders, glass cutter, suction cups	

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
necessary.		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.14	Verifies alignment and secures glass, plastic or other material in place.	knowledge of manufacturer's specifications ability to read and interpret drawings ability to use appropriate tools								appropriate tools			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.15	Applies sealer or sealant around glass according to specifications.	knowledge of caulking and sealant procedures knowledge of manufacturer's specifications								caulking gun			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
14.16	Applies flashing (air seal) according to specifications.	knowledge of manufacturer's specifications knowledge of safe use of explosive-actuated tools ability to use hand tools								explosive-actuated tool, pop riveter, hand tools			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks

Supporting Knowledge & Abilities

Tools & Equipment

Task 15 Installs ornamental and miscellaneous ironwork and non-ferrous components, such as stairways, railings, panels, catwalks, fences, sound barriers, vehicle guard rails, etc.

Trend: Greater prevalence of prefabricated components; more intricate designs.

15.01 Prepares job site by planning laydown areas, assembly areas, cranes location.

knowledge of job sequence and requirements

dunnage, site preparation equipment

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

15.02 Off-loads, identifies and sorts components, equipment and materials.

knowledge of hoisting signals

fork lift, crane, rigging equipment

knowledge of rigging procedures

knowledge of materials and components

knowledge of SWP

knowledge of care and handling of finished materials

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

15.03 Measures and marks layout for installation according to erection sequence.

ability to assemble and safely operate swing stage

transit, laser levelling devices, chalk line, swing stage, rigger's belt

ability to read and interpret drawings

ability to use tools

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment	
15.04	Verifies correct location of embedments, if necessary.	knowledge of layout material ability to read and interpret drawings	hammer, water level
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> NV yes yes yes yes yes	<u>NT</u> <u>YK</u> ND ND
15.05	Drills holes in existing structures, as required.	knowledge of layout material ability to read and interpret drawings	drills
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> NV yes yes yes yes yes	<u>NT</u> <u>YK</u> ND ND
15.06	Installs support clips, as required or specified.	knowledge of various welding procedures, such as stainless, aluminum and mild steel	ratchet wrench, welding and cutting equipment, torch, C-clamps
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> NV yes yes yes yes yes	<u>NT</u> <u>YK</u> ND ND
15.07	Assembles sections to be installed, as necessary.	knowledge of field fabrication procedures ability to improvise tools	screw-guns, hand drills, cutoff saw, file, dogs, wedges, bar clamps, come-alongs, crane, grinder, pony clamps, welding machine
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> NV yes yes yes yes yes	<u>NT</u> <u>YK</u> ND ND
15.08	Hoists assembled sections into predetermined locations.	knowledge of hoisting signals knowledge of SWP	crane, rigging equipment, chain block hoist, come-alongs, electric hoist, tugger

knowledge of safe rigging practices

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

15.09 Aligns, levels and plumbs components according to specifications/regulations.

knowledge of erection procedures

knowledge of use of surveying equipment

levelling device, squares, tigger, crane, plumb bob, transit, come-alongs, chain block hoist, Tirfors, crowbar

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

15.10 Fastens components into permanent position.

knowledge of welding and cutting procedures

knowledge of fastening methods

ability to read and interpret drawings

welding machine, hammer drill, impact wrench, ratchet wrench, hand tools

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

15.11 Performs cosmetic finishing, such as grinding, painting, filling, installing caps, cladding, etc.

knowledge of finishing procedures

grinder, paint, paint brushes, file, polishes, heater, sandpaper

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 16 Erects structural and architectural precast concrete components for buildings, bridges, towers and other structures.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
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Trend: No apparent change.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
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16.01	Prepares job site by planning temporary laydown areas, storage areas and cranes location.	knowledge of job sequence and requirements	dunnage, site preparation equipment
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

16.02	Lays out grid lines and shoots elevations.	knowledge of survey procedures and use of equipment ability to read and interpret drawings	transit, builder's level, survey equipment, plumb bob, chalk
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

16.03	Verifies correct location and condition of embedments, if necessary.	knowledge of layout material ability to read and interpret drawings	hammer
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

16.04	Off-loads and inventories equipment, components and material.	knowledge of hoisting signals knowledge of rigging procedures knowledge of materials and components	fork lift, crane, rigging equipment
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Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
	knowledge of SWP	
	knowledge of care and handling of finished materials	
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
16.05	Stores material and components in a safe and orderly manner.	knowledge of materials and storage practices
		knowledge of erection sequence
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
16.06	Installs support clips or bearing pads on structure or component, as specified or required.	ability to read and interpret drawings
		ability to use hand tools
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
16.07	Assembles proper rigging for hoisting component.	knowledge of SWP
		knowledge of rigging procedures
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND
16.08	Directs operator to hoist component into approximate position.	knowledge of crane signals
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
16.09	Aligns, levels and plumbs component.	knowledge of plumbing methods plumb bob, level, transit
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
16.10	Secures component in place by following specified fastening methods.	knowledge of appropriate fastening methods and materials
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
16.11	Disconnects rigging from component.	knowledge of SWP knowledge of crane signals
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
16.12	Installs gaskets, packing, caulking, air seal, etc., as specified.	ability to read and interpret drawings caulking gun
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
16.13	Performs visual inspection of work completed.	knowledge of components knowledge of standards
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
16.14	<p>Performs cosmetic finishing, such as patching, grouting, removal of lugs, etc.</p> <p>ability to grind and paint</p> <p>ability to prepare and apply grouting, patching, etc.</p>	<p>paint, paint brushes, grinder, cutting torch, grout mixer, pump and accessories</p>									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Task 17 Inspects or tests structures and equipment for deterioration, defects, non-compliance with specifications or regulations and unsafe conditions during or after construction.

Trend: Inspections occur with greater frequency, particularly as structures age and are affected by weather conditions. Inspectors must have broad knowledge of construction methods and materials.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
17.01	<p>Studies drawings or specifications of installation to be tested or inspected.</p> <p>knowledge of structural drawings</p> <p>knowledge of specifications</p> <p>knowledge of construction materials</p> <p>ability to read and interpret drawings</p>										
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
17.02	<p>Devises a valid inspection sequence or procedure, as required.</p> <p>knowledge of SWP</p> <p>knowledge of construction methods</p>										
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
17.03	<p>Performs visual and mechanical inspection of</p> <p>knowledge of SWP</p>	<p>torque wrenches, tape measure, multiplier,</p>									

installation to determine if connected or fastened material is properly placed and secured. knowledge of fastening methods hammer
 knowledge of construction standards

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

17.04 Checks symbols or identifying marks on construction materials. knowledge of symbols
 ability to read and interpret drawings

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

17.05 Tests installation of studs. knowledge of testing procedures hammer

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

17.06 Tests rivets to determine tightness and soundness. knowledge of testing procedures hammer

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND

17.07 Visually inspects surfaces of structures and equipment for faults, such as cracks, deterioration and corrosion. knowledge of SWP
 knowledge of construction materials

<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 18 Dismantles building framework, bridges, tanks, silos or other structures made of metal, precast concrete or laminated timbers.

Trend: Greater requirement to dismantle structures with minimum damage for purposes of reassembly or salvage.

18.01	Prepares work area and positions hoisting equipment in proper location.	knowledge of job sequence	site preparation equipment
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

18.02	Ensures all utilities, such as gas and electricity, are disconnected or de-energized.	knowledge of standards and conventions of supplying services to structures	
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

18.03	Selects storage area for materials to be salvaged.	knowledge of storage procedures	
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

18.04	Matches mark components for salvage as work progresses, if necessary.	knowledge of uses/value of salvage knowledge of job sequence ability to read and interpret drawings	marking tools
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
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Sub-tasks				Supporting Knowledge & Abilities							Tools & Equipment	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	yes	ND	ND
18.05	Calculates weights and selects proper rigging for each lift.			knowledge of rigging procedures ability to calculate weights knowledge of SWP								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
18.06	Connects slings, chokers, spreaders or other rigging equipment to structural component.			knowledge of rigging procedures knowledge of SWP							rigger's belt, rigging equipment	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
18.07	Dismantles or removes miscellaneous structure components.			knowledge of dismantling procedures							hoisting equipment, power tools, hand tools, cutting equipment	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
18.08	Positions lifting cable from hoisting equipment directly over centre of balance of member to be removed.			knowledge of rigging procedures knowledge of hoisting procedures knowledge of centre of gravity points							crane	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
18.09 Directs operator to apply sufficient lifting strain, so that component will not move when disconnected from main framework.	knowledge of hoisting signals	crane
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND
18.10 Disconnects component by appropriate method.	knowledge of SWP knowledge of detensioning cables knowledge of dismantling methods	power or hand wrenches, cutting equipment
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND
18.11 Directs hoisting operator to hoist, swing or lower material to ground or floor level.	knowledge of hoisting signals	crane
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND
18.12 Prepares material for shipment.	ability to calculate weights knowledge of storage procedures	dollies, rollers, jacks, fork lift, truck, crane, A-frame hoisting device, dunnage
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes
	<u>AB</u> yes	<u>BC</u> yes
		<u>NT</u> ND
		<u>YK</u> ND

BLOCK F REINFORCING CONCRETE

Task 19 Positions and secures steel bar or wire mesh reinforcing in forms prior to the pouring of concrete for grade beams, footings, walls, floors, columns, caissons and other components.

Trend: Greater use of corrosion-resistant reinforcing bar; tendency toward emphasis on mechanical splicing, tighter spacing and heavier bar in earthquake areas; inclusion of post-tensioning and prestressing as part of job; compliance with earthquake codes; greater emphasis on workers' knowledge and responsibility as well as on their safety.

19.01	Prepares job site by planning assembly areas, shop location, laydown areas, cranes location, etc.	knowledge of SWP knowledge of construction sequence knowledge of equipment requirements knowledge of symbols pertinent to the trade ability to read and interpret drawings, cutting sheets and detail sheets	dunnage, site preparation equipment
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<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND

19.02	Off-loads, identifies and sorts reinforcing steel according to size and type.	knowledge of materials knowledge of hoisting signals knowledge of and ability to apply rigging skills ability to calculate load weights knowledge of breaking strengths knowledge of strength of receiving area ability to interpret drawings for allowable dead loads	crane, dunnage, crowbar, rigging equipment, chokers, spreaders
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Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment		
19.03	Marks location of reinforcing bar on form surfaces.											
19.04	Reads and interprets detail sheets, shop drawings and working drawings.											
19.05	Selects appropriate reinforcing material.											
19.06	Identifies and installs chairs, beam bolsters, slab											

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment	
spacers, bar spacers, etc.				knowledge of materials							
				ability to read and interpret drawings							
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
19.07	Cuts and bends reinforcing bar to meet specifications and on-site requirements.			knowledge of equipment						crane, bending plate, torch, shear line,	
				knowledge of pin diameter formulae						bending machine, bolt cutters, hickey bar,	
				knowledge of SWP						cutoff saw	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
19.08	Preassembles and positions steel bars or wire mesh at predetermined locations.			knowledge of crane signals						crane, tie wire, pliers	
				knowledge of rigging procedures							
				knowledge of reinforcing bar ties							
				ability to read and interpret drawings, detail sheets and cutting sheets							
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
19.09	Directs crane operator to hoist reinforcing bar preassembly into position.			knowledge of hoisting signals						crane, rigging equipment	
				knowledge of safe rigging practices							
				ability to calculate weights							
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
19.10	<p>Secures reinforcing bar and/or wire mesh in place by means of mechanical splicing, tying, welding or other means.</p> <p>knowledge of materials</p> <p>knowledge of reinforcing bar ties and appropriate applications</p> <p>knowledge of mechanical splices</p>	welding equipment, hydraulic crimper
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND</p>	
19.11	<p>Verifies that installation meets specifications.</p> <p>knowledge of materials</p> <p>knowledge of the purpose of reinforced concrete</p> <p>knowledge of clearances</p> <p>ability to read and interpret drawings</p>	wrecking bar, hickey bar
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND</p>	
19.12	<p>Ensures reinforcing bar assembly remains stable during concrete pour.</p> <p>knowledge of materials</p> <p>knowledge of the purpose of reinforced concrete</p> <p>knowledge of clearances</p> <p>ability to read and interpret drawings</p>	
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND</p>	

Task 20 Post-tensions tendons (steel cables or rods) in cast-in-place or precast concrete for reinforcement purposes.

Trend: Greater degree of sophistication in equipment and materials; greater responsibility to attend to details; greater focus on compliance with job specifications. These skills are being increasingly applied to fabric roofs, cable-stay bridges, rehabilitation of existing structures, roof support and starch-type buildings.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
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Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
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20.01	Prepares job site by planning a dry laydown area and crane location areas.	knowledge of job sequence and requirements	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> NV yes yes no yes	<u>BC</u> <u>NT</u> <u>YK</u> yes ND ND
20.02	Off-loads, identifies and sorts components, equipment and materials.	knowledge of hoisting signals knowledge of rigging procedures knowledge of materials and components knowledge of SWP	crane, rigging equipment, nylon straps
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> NV yes yes no yes	<u>BC</u> <u>NT</u> <u>YK</u> yes ND ND
20.03	Calibrates and cleans stressing equipment.	knowledge of calibration method knowledge of equipment	load cell, brushes, gauges, hand tools
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> NV yes yes no yes	<u>BC</u> <u>NT</u> <u>YK</u> yes ND ND
20.04	Reads and interprets prestress drawings and shop drawings.	knowledge of shop drawings knowledge of prestress drawings knowledge of various post-tension (PT) systems and drawings	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> ND ND yes ND	<u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> NV yes yes no yes	<u>BC</u> <u>NT</u> <u>YK</u> yes ND ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
20.05	Verifies and marks tendon locations on concrete forms.	ability to read and interpret drawings paint, chalk
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.06	Notifies appropriate authorities of necessary changes.	knowledge of and ability to use communication skills knowledge of procedures
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.07	Drills and/or verifies correct locations of holes in forms for anchoring systems.	ability to read and interpret drawings electric drill, jig saw, hole saw
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.08	Positions and secures anchorages and bursting steel.	ability to read and interpret drawings socket wrenches
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.09	Marks the profile of the tendon.	ability to read and interpret drawings paint, stapler
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes
<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
20.10	Cuts, positions and secures supports and conduit at specified locations.	knowledge of and ability to read and interpret PT drawings cutoff saw, torch, stapler, bolt cutters
	knowledge of equipment	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND	
20.11	Selects, cuts and lays out tendon according to specifications.	ability to read and interpret drawings tugger, cutoff saw, cable pusher, decoiler, fish line
	knowledge of equipment	
	knowledge of materials	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND	
20.12	Connects tendon to anchorages.	knowledge of installation procedures utility knife with hook blades
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND	
20.13	Protects all exposed tendons with suitable materials.	knowledge of installation procedures utility knife, specialized tape
	knowledge of materials	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND	
20.14	Applies approved protection material to exclude concrete.	knowledge of installation procedures Tiger torch, utility knife, duct tape, grease, specialized tape
	knowledge of materials	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes no yes yes ND ND	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
20.15	Secures all dead ends of tendon according to specifications.	ability to read and interpret drawings stressing equipment, swagger									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.16	Conducts visual inspection of tendon and anchorage and repairs to specifications, if required.	knowledge of specifications ability to read and interpret drawings tape, grease, caulking, utility knife									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.17	Ensures assembled components remain stable during concrete pour.	knowledge of specifications stapler									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.18	Removes pocket-forming devices.	knowledge of procedures									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.19	Inspects and cleans anchorage, if necessary.	knowledge of specifications knowledge of job sequence and requirements knowledge of SWP cleaning equipment									

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
20.20	Installs wedges.			knowledge of procedures					setting tool			
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
20.21	Marks tendon to determine elongation.			knowledge of procedures					paint, tape			
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
20.22	Reads and interprets stressing data.			ability to interpret charts								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
20.23	Determines stressing sequence.			knowledge of and ability to read and interpret PT drawings				ability to interpret charts				
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	
20.24	Positions stressing equipment.			knowledge of equipment					crane, rigging equipment			
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND	

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment		
20.25	Installs safety barriers around work area.	knowledge of SWP								safety tape, safety barriers		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.26	Stresses tendon to required tension and elongation.	knowledge of stressing procedures and equipment								stressing equipment, crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.27	Documents elongation and gauge pressure on tendon.	ability to read and interpret gauge										
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.28	Locks tendon in position.	knowledge of stressing procedures and equipment								stressing equipment, crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.29	Disengages stressing equipment.	knowledge of stressing procedures and equipment								crane		
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> no	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
20.30	Destresses tendon by	knowledge of appropriate methods								stressing equipment,		

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment			
	approved methods, if required.											crane	
					knowledge of equipment								
					knowledge of appropriate job procedures								
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
20.31	Cuts off excess tendon.											torch, hydraulic cable cutter, cutoff saw	
					knowledge of appropriate job procedures								
					knowledge of materials								
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
20.32	Installs grease cap and patches pockets where necessary.											grease gun, caulking gun, slag hammer	
					knowledge of materials								
					knowledge of procedures								
					knowledge of sealants and caulking								
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND
20.33	Applies grout to voids in duct where necessary.											grout pump and accessories, compressor	
					knowledge of procedures								
					knowledge of materials								
					knowledge of SWP								
					ability to formulate grout								
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	no	yes	yes	ND	ND

BLOCK G MOVING AND INSTALLATION OF ROBOTIC EQUIPMENT**Task 21 Erects and installs robotic equipment for material handling and automated mechanical systems.**

Trend: Factory modularization resulting in a lesser degree of field fabrication; higher competency level required for installation procedures.

21.01	Prepares job site by planning for laydown areas, storage areas, pre-assembly areas, access, etc.	<p>knowledge of component structure and function</p> <p>knowledge of the delicate nature of materials</p> <p>knowledge of job sequence</p>	fork lift, carry-deck crane
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u></p> <p>ND ND no ND</p>	<p><u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u></p> <p>NV yes yes yes yes yes ND ND</p>	
21.02	Off-loads and inventories equipment, components and materials.	<p>knowledge of materials</p> <p>knowledge of erection sequence</p> <p>knowledge of finishes</p> <p>knowledge of bills of lading</p> <p>knowledge of material lists</p> <p>knowledge of manufacturer's handling specifications</p> <p>ability to identify components</p>	wrecking bar, fork lift, dunnage, hoisting equipment, rigging equipment
	<p><u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u></p> <p>ND ND no ND</p>	<p><u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u></p> <p>NV yes yes yes yes yes ND ND</p>	

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
21.03	Identifies, sorts and properly stores components and materials according to job progress requirements.	knowledge of job sequence knowledge of proper storage environment ability to identify components ability to assess suitability of storage areas									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.04	Inspects components and removes shipping stays, as necessary.	knowledge of component structure and function knowledge of shipping practices	torch, socket wrenches, screwdriver, Allen wrenches								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.05	Preassembles components, if required.	knowledge of component structure and function knowledge of and ability to use precision tools	socket wrenches, Allen wrenches, hand tools								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.06	Lays out grid lines and shoots elevations.	knowledge of survey procedures and use of equipment ability to read and interpret drawings	transit, builder's level, survey equipment, plumb bob, chalk								
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> no	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment									
21.07 Installs anchorages in accordance with specifications.	<p>knowledge of welding and cutting procedures</p> <p>knowledge of traditional and chemical anchoring systems</p> <p>ability to read and interpret drawings</p>	hammer drill, welding and cutting equipment									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> no	<u>NT</u> ND	<u>YK</u> ND
21.08 Fabricates, erects or places supports in accordance with specifications.	<p>ability to read and interpret drawings</p> <p>ability to identify parts and material</p>	torch, welding machine, carry-deck crane, hand tools									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.09 Completes assembly of robotic components.	<p>knowledge of manufacturer's specifications</p> <p>knowledge of component structure and function</p> <p>ability to read and interpret drawings</p>	socket wrenches, feeler gauge, Allen wrenches, micrometer									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.10 Rigs, handles and places components.	knowledge of manufacturer's rigging specifications	rigging equipment, nylon slings, eye bolt									
<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
21.11	Levels and aligns components to specifications.	knowledge of use of precision measuring and levelling equipment ability to read specifications ability to read and interpret drawings								machinist's level, micrometer, feeler gauge, shims			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> no	<u>NT</u> ND	<u>YK</u> ND
21.12	Fastens components into position according to specifications.	knowledge of application of manufacturer's specifications knowledge of trade practices								hand wrenches, spanners, socket wrenches, Allen wrenches			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
21.13	Installs or connects hydraulic and pneumatic systems.	knowledge of manufacturer's specifications ability to read and interpret drawings								adjustable wrenches			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> no	<u>NT</u> ND	<u>YK</u> ND
21.14	Conducts final alignment of components.	knowledge of use of precision measuring and levelling equipment knowledge of levelling and alignment procedures knowledge of manufacturer's specifications								socket wrenches, machinist's level, micrometer, feeler gauge, shims			
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> no	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> no	<u>NT</u> ND	<u>YK</u> ND

21.15	Installs safety systems and protective devices according to codes and specifications.	knowledge of manufacturer's specifications knowledge of applicable codes and regulations ability to read and interpret drawings	adjustable wrenches, hammer drill, socket wrenches, welding and cutting equipment, torch																								
	<table border="0"> <tr> <td><u>NF</u></td> <td><u>NS</u></td> <td><u>PE</u></td> <td><u>NB</u></td> <td><u>PQ</u></td> <td><u>ON</u></td> <td><u>MA</u></td> <td><u>SK</u></td> <td><u>AB</u></td> <td><u>BC</u></td> <td><u>NT</u></td> <td><u>YK</u></td> </tr> <tr> <td>ND</td> <td>ND</td> <td>no</td> <td>ND</td> <td>NV</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>ND</td> <td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND																
21.16	Starts up, inspects and troubleshoots system.	knowledge of components and interactive function	socket wrenches																								
	<table border="0"> <tr> <td><u>NF</u></td> <td><u>NS</u></td> <td><u>PE</u></td> <td><u>NB</u></td> <td><u>PQ</u></td> <td><u>ON</u></td> <td><u>MA</u></td> <td><u>SK</u></td> <td><u>AB</u></td> <td><u>BC</u></td> <td><u>NT</u></td> <td><u>YK</u></td> </tr> <tr> <td>ND</td> <td>ND</td> <td>no</td> <td>ND</td> <td>NV</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>yes</td> <td>ND</td> <td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	no	ND	NV	yes	yes	yes	yes	yes	ND	ND																

BLOCK H ERECTION OF SCAFFOLDS, FALSEWORK AND OTHER WORKING PLATFORMS

Task 22 Erects temporary frame or tube scaffolds, falsework, shoring, etc.

Trend: No apparent change.

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
22.01 Prepares job site by planning for laydown areas, storage areas, preassembly areas, access, etc.	knowledge of erection procedures knowledge of SWP ability to read and interpret drawings	site preparation equipment

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.02	Off-loads components.			knowledge of hoisting signals						fork lift, crane, rigging equipment	
				knowledge of rigging procedures							
				knowledge of materials and components							
				knowledge of SWP							
				knowledge of care and handling of finished materials							
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.03	Inspects components for defects.			knowledge of SWP							
				knowledge of components							
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.04	Ensures that the site is sound and level.			knowledge of standard work procedures						transit, level	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.05	Prepares, positions and levels sills, baseplates, timbers and jackscrews,			knowledge of erection sequence						transit, level	

Sub-tasks		Supporting Knowledge & Abilities							Tools & Equipment				
where necessary.		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.06	Assembles and secures frames, tubes, posts, braces, ladders or other components according to specifications and codes.	knowledge of assembling methods knowledge of standard work procedures ability to interpret working drawings							crowbar, tag lines, crane, hand tools, locks, plate clamps, couplers, sledgehammers, welding and cutting equipment, hydraulic and mechanical jacks				
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.07	Aligns, levels and plumbs structure as erection progresses.	knowledge of levelling procedures							transit, level, shims				
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.08	Installs guy wires or outriggers as erection progresses.	knowledge of rigging procedures							guy wires, outriggers				
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
		ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.09	Lays wood, steel or aluminum planks at	knowledge of rigging procedures							#9 wire, pliers				

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment	
	working level.	knowledge of WCB rules and regulations									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.10	Installs toe boards and guard rails at working level.	knowledge of safety codes and regulations								fastening equipment, welding and cutting equipment	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.11	Inspects scaffold or falsework to ensure all components are properly installed and secured.	knowledge of SWP knowledge of components									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.12	Performs periodic inspection of scaffolding or falsework.	knowledge of procedures for servicing and maintaining movable and powered scaffolds knowledge of the effects of overloads									
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
22.13	Dismantles scaffold or falsework at completion of construction.	knowledge of dismantling procedures								torch, power tools	
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Task 23 Suspends scaffolds from structures.Trend: No apparent change.

Sub-tasks		Supporting Knowledge & Abilities								Tools & Equipment			
23.01	Inspects all components for defects.	knowledge of SWP knowledge of rigging procedures knowledge of knots ability to interpret Construction Safety Act, WCB and company standards and regulations knowledge of functions and features of hanging scaffolds											
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
23.02	Reinspects outriggers, counterweights and points of support.	knowledge of types and characteristics of points of support for hanging scaffolds											
		<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
23.03	Attaches counterweights to outriggers and secures to proper points.	knowledge of safe fastening methods								tag lines, socket wrenches, adjustable wrenches			
		<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>

Sub-tasks				Supporting Knowledge & Abilities						Tools & Equipment		
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
23.04	Attaches cables, lifting blocks and hoisting units to scaffold and outriggers.			knowledge of SWP knowledge of rigging procedures knowledge of equipment								
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
23.05	Attaches worker's safety line to secure point at proper location.			knowledge of SWP knowledge of the value of periodic inspection knowledge of WCB rules and regulations knowledge of false arrest procedures						personal protective equipment		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	
23.06	Dismantles scaffold equipment at completion of construction operations.			knowledge of methods of maintaining and storing scaffold material after use						tag lines, socket wrenches, adjustable wrenches		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	
ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND	

BLOCK I ERECTION OF WOOD STRUCTURES**Task 24 Erects structural wood material for buildings (such as mine product storage) churches, schools, pedestrian bridges and walkways.**Trend: No apparent change.

24.01	Prepares job site for storage of material.	knowledge of erection procedures	site preparation equipment
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
24.02	Off-loads structural wood material.	knowledge of SWP knowledge of rigging procedures knowledge of lifting capacity of hoisting equipment	crane, fork lift, rigger's belt, rigging equipment, dunnage
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND
24.03	Inventories components and stores material in a safe manner.	knowledge of job sequence	wood supports, shores
	<u>NF</u> ND	<u>NS</u> ND	<u>PE</u> yes
	<u>NB</u> ND	<u>PQ</u> NV	<u>ON</u> yes
	<u>MA</u> yes	<u>SK</u> yes	<u>AB</u> yes
	<u>BC</u> yes	<u>NT</u> ND	<u>YK</u> ND

Sub-tasks	Supporting Knowledge & Abilities										Tools & Equipment	
24.04	Assembles sections of structural wood material.				knowledge of assembly and erection methods						drill, bolts	
					ability to read and interpret drawings							
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
24.05	Connects components to hoisting equipment.				knowledge of rigging procedures						slings, chokers, spreaders, lashing	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
24.06	Directs operator to lift and spot columns, beams and other components into position.				knowledge of hoisting signals							
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
24.07	Plumbs up components.				knowledge of erection procedures						wire rope cable, turnbuckles	
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND
24.08	Brings components to proper elevation and installs bracing and framing.				knowledge of levelling procedures						shims, jacks, grout, wedges, level, transit	
					ability to use surveying equipment							
	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>
	ND	ND	yes	ND	NV	yes	yes	yes	yes	yes	ND	ND

Sub-tasks	Supporting Knowledge & Abilities	Tools & Equipment
24.09	Brings components to complete alignment.	plumb bob, level, transit
	knowledge of techniques for checking line	
	knowledge of and familiarity with effects of improper alignment	
	ability to use surveying equipment	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
24.10	Secures components in place by bolting or welding according to specifications.	welding equipment, adjustable wrenches
	knowledge of fastening methods	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	
24.11	Removes all plumb cables after building is secure.	hand tools
	knowledge of rigging procedures	
	<u>NF</u> <u>NS</u> <u>PE</u> <u>NB</u> <u>PQ</u> <u>ON</u> <u>MA</u> <u>SK</u> <u>AB</u> <u>BC</u> <u>NT</u> <u>YK</u> ND ND yes ND NV yes yes yes yes yes ND ND	

APPENDICES

TOOLS AND EQUIPMENT

adjustable wrenches	propane
bolt bag(s)	reels
bolt cutter	respirator
bull pin	rivet buster (long tong)
burning glasses	riveting gun
C-clamps	Robertson screwdrivers (4 sizes)
centre punch	rod bag
chain and ladder hook	rod oven
chalk holder	rubber mallet
chalk line	safety belt
chisel	safety boots
clip wrench (30 cm adjustable)	safety glasses
coke	safety harness
combination square (3 cm)	safety scaffolds
connecting bar	scriber
coveralls	side cutter
decoiler	sledgehammers
electric drill and bits	socket set
fire extinguishers	spud wrenches (various sizes)
flat screwdriver	square
forge	stapler
funnels	stressing adapters, stressing rods and accessories
gloves	stressing jack
grinder	striker
grinding wheels	tape measure
grout mixer, pump and accessories	tarps
hacksaw and blades	tin snips
hammers (various types)	tongs
hard hat	torch
hearing protection	torch lighter
hydraulic pump	torpedo level
lanyard	two-way radios
leather jacket	utility knife
medium file	vice grips
nylon slings	welding gloves
open-end wrenches (2 sizes)	welding helmet
Phillips screwdrivers (2 sizes)	welding machine
pipe wrench	winch and tugger
pliers	wire brush
plumb bob	wire mesh pulling grips
portable cutoff saw	wire reels
power cords	

GLOSSARY

becket	a device used to connect cable to a block or boom.
bridle (cradle)	two or more slings used to lift a load.
bull pin	a tapered pin for lining up material.
bursting steel	reinforcing steel used to prevent bursting of concrete during and after post-tensioning.
cathead	a sheave assembly.
chairs	reinforcing bar support.
choker	wire rope or fabric sling with eye splice or loop at each end.
clip wrench	adjustable wrench.
come-along	a hand operated device used to pull cable or chain or for hoisting loads.
curtain wall	an exterior building wall which carries no roof or floor loads composed principally of metal, but which may contain glass or other surface materials.
dog	an L-shaped metal instrument used to align plates.
drift pin	a round tapered piece of metal used to align holes.
dunnage	blocking (usually wood) to temporarily support equipment and material off the ground.
fid	wooden spike for splicing fibre rope.
frog	leather holder for spud wrenches.
girder	a beam that supports roof or floor load weights.
grommet sling	an endless sling of fibre rope.
headache ball	a counterweight on a line.
hickey bar	steel bar for bending reinforcing bars.

jig	a device used in holding materials for bending, drilling or welding.
joist	intermediate structure that supports roof or floor load weights.
key	metal device used to align tank walls.
lash	a random length of cable secured by cable clamps and used to temporarily secure loads.
marline spike	metal spike for splicing wire rope.
match mark	coding components for the purpose of proper reassembly.
plumb	aligned and level.
profile	proper elevations and locations of post-tension cable.
sag rod	a vertical supporting rod between two members.
snatch block	interlocking hoisting block.
spud wrench	pointed wrenches for lining up materials.
stirrups	deformed or plain bars bent to support and contain the longitudinal bars of a beam, girder, etc.
suitcase	a multi-sheaved block.
swayger	hydraulic crimping machine.
tag line	line used for guiding loads during hoisting or moving to prevent swinging.
thimble	curved metal plate for protecting rope or wire eyes from chaffing or cutting.
tie rod	a horizontal fastening rod between two members.
Tirfor	a hand operated pulling or hoisting device.
tugger	compressor operated hoisting device.
turnbuckle	a device attached to wire rope for making limited adjustments in length; it consists of a barrel and right and left hand treaded bolts.
U-bolt	a semi-circular rod with threaded ends.

Task 4 Prepares wire and fibre ropes and tackle.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 20 ND NV 55 80 10 50 20 ND ND

Nat.
Avg.

39%

Task 5 Rigs and moves loads.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 80 ND NV 45 20 90 50 80 ND ND

Nat.
Avg.

61%

BLOCK D ERECTION OF HOISTING AND CONVEYANCE EQUIPMENT

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 2 ND NV 18 10 12 8 11 ND ND

Nat.
Avg.

10%

Task 6 Assembles, erects, jumps and dismantles tower cranes.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 0 ND NV 30 15 15 20 11 ND ND

Nat.
Avg.

15%

Task 7 Assembles, erects, jumps and dismantles various derrick types.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 0 ND NV 20 5 5 5 5 ND ND

Nat.
Avg.

7%

Task 8 Assembles and dismantles conventional and hydraulic cranes.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 2 ND NV 15 35 25 30 22 ND ND

Nat.
Avg.

22%

Task 9 Assembles, erects, jumps and dismantles material and personnel hoists.

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 28 ND NV 12 10 5 15 7 ND ND

13%

Task 10 Installs support structures, framework and related structural and mechanical equipment for conveying systems and material handling systems.

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 70 ND NV 23 35 50 30 55 ND ND

43%

BLOCK E ERECTION OF STRUCTURAL IRONWORK

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 55 ND NV 37 30 51 35 34 ND ND

40%

Task 11 Erects structural steel framework for buildings, bridges and towers.

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 40 ND NV 20 40 60 30 53 ND ND

40%

Task 12 Erects metal storage tanks, bins and hoppers.

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 10 ND NV 10 5 10 10 6 ND ND

9%

Task 13 Assembles and erects pre-engineered buildings, bridges, silos, and similar structures.

Nat.
Avg.

% NF NS PE NB PQ ON MA SK AB BC NT YK
ND ND 15 ND NV 12 10 5 15 6 ND ND

11%

Task 14	Assembles and installs curtain walls, window walls, doorways, store fronts, revolving doors, mantraps, etc., in and on buildings.	Nat. Avg.	9%																								
%	<table border="0" style="width: 100%;"> <tr> <td><u>NF</u></td><td><u>NS</u></td><td><u>PE</u></td><td><u>NB</u></td><td><u>PQ</u></td><td><u>ON</u></td><td><u>MA</u></td><td><u>SK</u></td><td><u>AB</u></td><td><u>BC</u></td><td><u>NT</u></td><td><u>YK</u></td> </tr> <tr> <td>ND</td><td>ND</td><td>5</td><td>ND</td><td>NV</td><td>15</td><td>5</td><td>10</td><td>10</td><td>6</td><td>ND</td><td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	5	ND	NV	15	5	10	10	6	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	5	ND	NV	15	5	10	10	6	ND	ND																
Task 15	Installs ornamental and miscellaneous ironwork and non-ferrous components, such as stairways, railings, panels, catwalks, fences, sound barriers, vehicle guard rails, etc.	Nat. Avg.	11%																								
%	<table border="0" style="width: 100%;"> <tr> <td><u>NF</u></td><td><u>NS</u></td><td><u>PE</u></td><td><u>NB</u></td><td><u>PQ</u></td><td><u>ON</u></td><td><u>MA</u></td><td><u>SK</u></td><td><u>AB</u></td><td><u>BC</u></td><td><u>NT</u></td><td><u>YK</u></td> </tr> <tr> <td>ND</td><td>ND</td><td>5</td><td>ND</td><td>NV</td><td>15</td><td>20</td><td>5</td><td>15</td><td>12</td><td>ND</td><td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	5	ND	NV	15	20	5	15	12	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	5	ND	NV	15	20	5	15	12	ND	ND																
Task 16	Erects structural and architectural precast concrete components for buildings, bridges, towers and other structures.	Nat. Avg.	11%																								
%	<table border="0" style="width: 100%;"> <tr> <td><u>NF</u></td><td><u>NS</u></td><td><u>PE</u></td><td><u>NB</u></td><td><u>PQ</u></td><td><u>ON</u></td><td><u>MA</u></td><td><u>SK</u></td><td><u>AB</u></td><td><u>BC</u></td><td><u>NT</u></td><td><u>YK</u></td> </tr> <tr> <td>ND</td><td>ND</td><td>15</td><td>ND</td><td>NV</td><td>8</td><td>10</td><td>5</td><td>15</td><td>12</td><td>ND</td><td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	15	ND	NV	8	10	5	15	12	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	15	ND	NV	8	10	5	15	12	ND	ND																
Task 17	Inspects or tests structures and equipment for deterioration, defects, non-compliance with specifications or regulations and unsafe conditions during or after construction.	Nat. Avg.	4%																								
%	<table border="0" style="width: 100%;"> <tr> <td><u>NF</u></td><td><u>NS</u></td><td><u>PE</u></td><td><u>NB</u></td><td><u>PQ</u></td><td><u>ON</u></td><td><u>MA</u></td><td><u>SK</u></td><td><u>AB</u></td><td><u>BC</u></td><td><u>NT</u></td><td><u>YK</u></td> </tr> <tr> <td>ND</td><td>ND</td><td>5</td><td>ND</td><td>NV</td><td>7</td><td>5</td><td>2</td><td>2</td><td>2</td><td>ND</td><td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	5	ND	NV	7	5	2	2	2	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	5	ND	NV	7	5	2	2	2	ND	ND																
Task 18	Dismantles building framework, bridges, tanks, silos or other structures made of metal, precast concrete or laminated timbers.	Nat. Avg.	5%																								
%	<table border="0" style="width: 100%;"> <tr> <td><u>NF</u></td><td><u>NS</u></td><td><u>PE</u></td><td><u>NB</u></td><td><u>PQ</u></td><td><u>ON</u></td><td><u>MA</u></td><td><u>SK</u></td><td><u>AB</u></td><td><u>BC</u></td><td><u>NT</u></td><td><u>YK</u></td> </tr> <tr> <td>ND</td><td>ND</td><td>5</td><td>ND</td><td>NV</td><td>13</td><td>5</td><td>3</td><td>3</td><td>3</td><td>ND</td><td>ND</td> </tr> </table>	<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>	ND	ND	5	ND	NV	13	5	3	3	3	ND	ND		
<u>NF</u>	<u>NS</u>	<u>PE</u>	<u>NB</u>	<u>PQ</u>	<u>ON</u>	<u>MA</u>	<u>SK</u>	<u>AB</u>	<u>BC</u>	<u>NT</u>	<u>YK</u>																
ND	ND	5	ND	NV	13	5	3	3	3	ND	ND																

BLOCK PERCENTAGES

TITLES OF BLOCKS

- A SAFETY, ACCIDENT PREVENTION AND FIRST AID****
- B JOB PLANNING AND PREPARATION**
- C RIGGING AND MACHINERY MOVING**
- D ERECTION OF HOISTING AND CONVEYANCE EQUIPMENT**
- E ERECTION OF STRUCTURAL IRONWORK**
- F REINFORCING CONCRETE**
- G MOVING AND INSTALLATION OF ROBOTIC EQUIPMENT**
- H ERECTION OF SCAFFOLDS, FALSEWORK AND OTHER WORKING PLATFORMS**
- I ERECTION OF WOOD STRUCTURES**

** Since safety practices are a mandatory feature of all occupations, they are considered common core, ratings are not required and thus Block A does not appear on the chart.