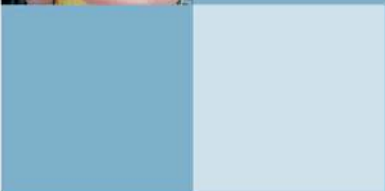
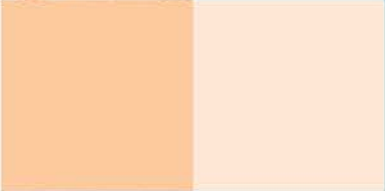
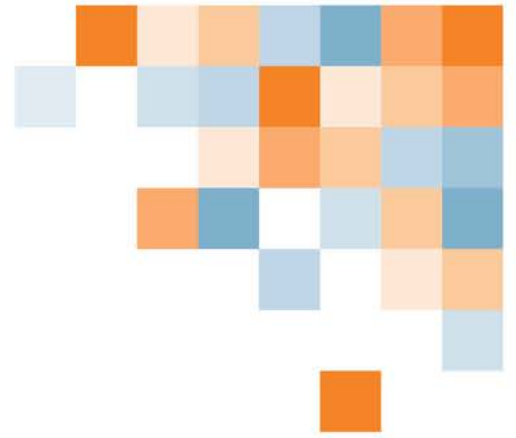


ita
YOUR TICKET.



PROGRAM OUTLINE
Construction Craft Worker
(Labourer)



The latest version of this document is available in PDF format on the ITA website
www.itabc.ca

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CONSTRUCTION CRAFT WORKER (LABOURER) PROGRAM OUTLINE

**APPROVED BY INDUSTRY
SEPT 2015**

**BASED ON
NOA 2015**

**Developed by
Industry Training Authority
Province of British Columbia**



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Section 1

INTRODUCTION

Construction Craft Worker

(Labourer)



Foreword

This Construction Craft Worker (Labourer) Program Outline is intended as a guide for instructors, apprentices, and employers of apprentices as well as for the use of industry organizations, regulatory bodies, and provincial and federal governments. It reflects updated standards based on the British Columbia industry and Subject Matter Experts.

Practical instruction by demonstration and student participation should be integrated with classroom sessions. Safe working practices, even though not always specified in each operation or topic, are an implied part of the program and should be stressed throughout the apprenticeship.

This Program Outline includes a list of recommended reference textbooks that are available to support the Learning Objectives and the minimum shop requirements needed to support instruction.

The Program Outline was prepared with the advice and assistance of the Construction Craft Worker (Labourer) Committee and will form the basis for further updating of the British Columbia Construction Craft Worker (Labourer) Program and learning resources by the BC Safety Authority on behalf of the Industry Training Authority (ITA).

Each competency is to be evaluated through the use of written examination in which the learner must achieve a minimum of 70% in order to receive a passing grade. The types of questions used on these exams must reflect the cognitive level indicated by the Learning Objectives and the Learning Tasks listed in the related competencies.

Achievement Criteria are included for those competencies that require an in-class practical assessment. The intent of including Achievement Criteria in the Program Outline is to ensure consistency in training across the many training institutions in British Columbia. Their purpose is to reinforce the theory and to provide a mechanism for evaluation of the learner's ability to apply the theory to practice. It is important that these performances be observable and measureable and that they reflect the skills spelled out in the competency as those required of a competent journey person. The conditions under which these performances will be observed and measured must be clear to the learner as well as the criteria by which the learner will be evaluated. The learner must also be given the level of expectation of success.

The performance spelled out in the Achievement Criteria is a suggested performance and is not meant to stifle flexibility of delivery. Training providers are welcome to substitute other practical performances that measure similar skills and attainment of the competency. Multiple performances may also be used to replace individual performances where appropriate.

SAFETY ADVISORY

Be advised that references to the WorkSafeBC safety regulations contained within these materials do not/may not reflect the most recent Occupational Health and Safety Regulation (the current Standards and Regulation in BC can be obtained on the following website: <http://www.worksafebc.com>). Please note that it is always the responsibility of any person using these materials to inform him/herself about the Occupational Health and Safety Regulation pertaining to his/her work.



Acknowledgements

The Occupational Analysis Chart was reviewed and revised by the following Industry Subject Matter Experts:

Jeff Anders	Construction and Specialized Workers Union, Local 1611
Mike Bokstrom	Construction and Specialized Workers Union, Local 1611
Ron Champagne	Construction and Specialized Workers Union, Local 1611
Curtis Duke	Construction and Specialized Workers Union, Local 1611
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The Program Outline was reviewed and revised by Industry and Instructor Subject Matter Experts:

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Ron Champagne	Construction and Specialized Workers Union, Local 1611
Barry Kirton	Construction and Specialized Workers Union, Local 1611
Tom Miller	Construction and Specialized Workers' Training Society
Robert Ryl	
Fred Webber	Construction and Specialized Workers' Training Society



How to Use this Document

This Program Outline has been developed for the use of individuals from several different audiences. The table below describes how each section can be used by each intended audience.

Section	Training Providers	Employers/ Sponsors	Apprentices	Challengers
Program Credentialing Model	Communicate program length and structure, and all pathways to completion	Understand the length and structure of the program	Understand the length and structure of the program, and pathway to completion	Understand challenger pathway to Certificate of Qualification
OAC	Communicate the competencies that industry has defined as representing the scope of the occupation	Understand the competencies that an apprentice is expected to demonstrate in order to achieve certification	View the competencies they will achieve as a result of program completion	Understand the competencies they must demonstrate in order to challenge the program
Training Topics and Suggested Time Allocation	Shows proportionate representation of general areas of competency (GACs) at each program level, the suggested proportion of time spent on each GAC, and percentage of time spent on theory versus practical application	Understand the scope of competencies covered in the technical training, the suggested proportion of time spent on each GAC, and the percentage of that time spent on theory versus practical application	Understand the scope of competencies covered in the technical training, the suggested proportion of time spent on each GAC, and the percentage of that time spent on theory versus practical application	Understand the relative weightings of various competencies of the occupation on which assessment is based
Program Content	Defines the objectives, learning tasks, high level content that must be covered for each competency, as well as defining observable, measureable achievement criteria for objectives with a practical component	Identifies detailed program content and performance expectations for competencies with a practical component; may be used as a checklist prior to signing a recommendation for certification (RFC) for an apprentice	Provides detailed information on program content and performance expectations for demonstrating competency	Allows individual to check program content areas against their own knowledge and performance expectations against their own skill levels



Section	Training Providers	Employers/ Sponsors	Apprentices	Challengers
Training Provider Standards	Defines the facility requirements, tools and equipment, reference materials (if any) and instructor requirements for the program	Identifies the tools and equipment an apprentice is expected to have access to; which are supplied by the training provider and which the student is expected to own	Provides information on the training facility, tools and equipment provided by the school and the student, reference materials they may be expected to acquire, and minimum qualification levels of program instructors	Identifies the tools and equipment a tradesperson is expected to be competent in using or operating; which may be used or provided in a practical assessment
Appendix A: Assessment Guidelines	Provides information on how in-class marks are weighted and blended.	Provides information on how in-class marks are weighted and blended.	Provides information on how in-class marks are weighted and blended.	
Appendix B: Glossary	Defines program specific terms and abbreviations	Defines program specific terms and abbreviations	Defines program specific terms and abbreviations	Defines program specific terms and abbreviations



Section 2

PROGRAM OVERVIEW

Construction Craft Worker (Labourer)

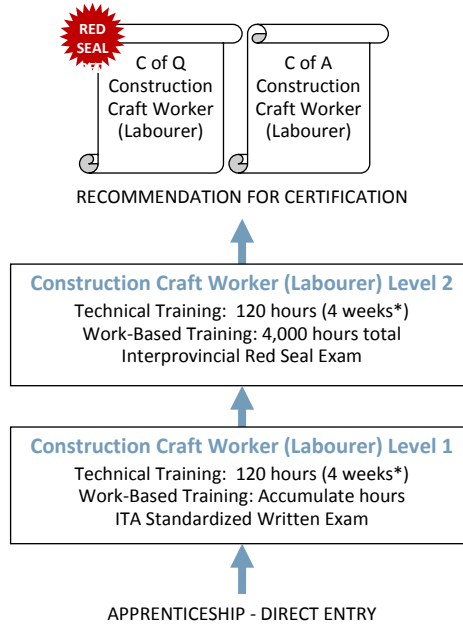


Program Credentialing Model

Apprenticeship Pathway

This graphic provides an overview of the Construction Craft Worker (Labourer) apprenticeship pathway.

C of Q = Certificate of Qualification
 C of A = Certificate of Apprenticeship



**Suggested duration based on 30-hour week*

CROSS-PROGRAM CREDITS

Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program

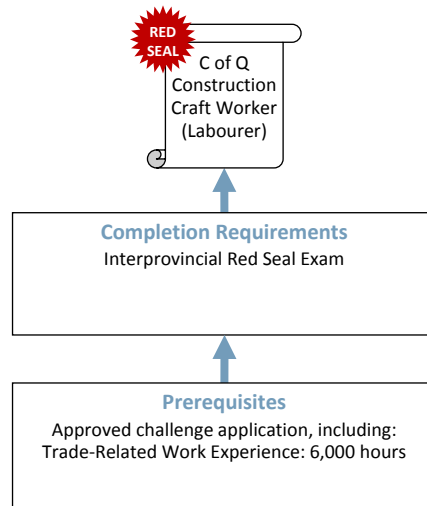
None



Challenge Pathway

This graphic provides an overview of the Construction Craft Worker (Labourer) challenge pathway.

C of Q = Certificate of Qualification



CREDIT FOR PRIOR LEARNING

Individuals who hold the credentials listed below are entitled to receive partial credit toward the completion requirements of this program

None



Occupational Analysis Chart

CONSTRUCTION CRAFT WORKER (LABOURER)

Occupation Description: Construction Craft Workers (Labourers) work mostly on construction sites in residential, institutional, commercial, and industrial settings, including pipelines, utilities, hydroelectric dams, roadways, bridges, tunnels, shipyards, mining and railways. Construction Craft Worker (Labourer) tasks include site preparation and cleanup, setting up and removing access equipment, and assisting on concrete, masonry, steel, wood and pre-cast erection projects. They handle materials and equipment and perform demolition, excavation and compaction activities. They may also perform site safety and security checks.

USE SAFE WORK PRACTICES A	Manage Workplace Hazards A1 1 2	Apply OHS Regulations and WorkSafeBC Standards A2 1	Use Fall Protection Systems and Equipment A3 1	Use Personal Protective Equipment A4 1	Use Fire Safety Procedures A5 1	Use Safety Committees A6 2	
	Perform Safety Watch A7 1						
	ORGANIZE WORK B	Use Documentation, Blueprints and Specifications B1 1 2	Communicate with Others B2 1	Use Basic Trade Math B3 1 2			
		USE TOOLS AND EQUIPMENT C	Use Hand Tools C1 1	Use Power Tools C2 1	Use Powder-Actuated Tools C3 1	Use Rigging and Hoisting Equipment C4 1	Use Portable Equipment C5 1
			Use Sandblasters C7 1	Use Packers C8 1	Use Mobile Equipment C6 1		



PERFORM ROUTINE TRADE ACTIVITIES
D

Install Permanent and Temporary Fencing					D1
1					

Erect and Dismantle Hoarding/Enclosures					D2
1					

Perform Traffic Control					D3
1					

Establish Grades and Elevations					D4
1	2				

Handle Materials					D5
1					

Install Membranes					D6
1					

Install Insulating Materials					D7
1					

PERFORM SITE WORK
E

Prepare Site					E1
1	2				

Perform Ground Work					E2
1	2				

Perform Demolition					E3
1	2				

Apply Excavation and Shoring Practices					E4
1					

Service Site					E5
1					

USE SCAFFOLDING AND ACCESS EQUIPMENT
F

Use Scaffolding					F1
1	2				

Use Access Equipment					F2
1					

PERFORM CONCRETE WORK
G

Form Concrete					G1
1	2				

Place and Finish Concrete					G2
1	2				

Modify Concrete					G3
	2				

Install Grout, Epoxies and Caulking					G4
	2				

PERFORM MASONRY WORK
H

Prepare Masonry Work					H1
	2				

Tend to Bricklayers					H2
	2				

Program Overview



PERFORM UTILITIES AND PIPELINE TASKS I	Install Utility Piping I1	Perform Pipeline Activities I2	Perform Pipeline Maintenance I3															
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PERFORM ROADWORK J	Install Paving Materials J1	Install Roadwork Components J2																
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Training Topics and Suggested Time Allocation

CONSTRUCTION CRAFT WORKER (LABOURER) – LEVEL 1

		% of Time Allocated to:			
		% of Time	Theory	Practical	Total
Line A	USE SAFE WORK PRACTICES	10%	80%	20%	100%
A1	Manage Workplace Hazards		✓		
A2	Apply OHS Regulations and WorkSafeBC Standards		✓		
A3	Use Fall Protection Systems and Equipment		✓	✓	
A4	Use Personal Protective Equipment		✓	✓	
A5	Use Fire Safety Procedures		✓		
A7	Perform Safety Watch		✓		
Line B	ORGANIZE WORK	8%	50%	50%	100%
B1	Use Documentation, Blueprints and Specifications		✓	✓	
B2	Communicate with Others		✓		
B3	Use Basic Trade Math		✓	✓	
Line C	USE TOOLS AND EQUIPMENT	10%	70%	30%	100%
C1	Use Hand Tools		✓		
C2	Use Power Tools		✓	✓	
C3	Use Powder-Actuated Tools		✓		
C4	Use Rigging and Hoisting Equipment		✓		
C5	Use Portable Equipment		✓		
C6	Use Mobile Equipment		✓		
C7	Use Sandblasters		✓		
C8	Use Packers		✓	✓	
Line D	PERFORM ROUTINE TRADE ACTIVITIES	10%	80%	20%	100%
D1	Install Permanent and Temporary Fencing		✓	✓	
D2	Erect and Dismantle Hoarding / Enclosures		✓		
D3	Perform Traffic Control		✓		
D4	Establish Grades and Elevations		✓		
D5	Handle Materials		✓		
D6	Install Membranes		✓		
D7	Install Insulating Materials		✓		
Line E	PERFORM SITE WORK	18%	80%	20%	100%
E1	Prepare Site		✓		
E2	Perform Ground Work		✓	✓	
E3	Perform Demolition		✓		
E4	Apply Excavation and Shoring Practices		✓		
E5	Service Site		✓		



Line F	USE SCAFFOLDING AND ACCESS EQUIPMENT	10%	40%	60%	100%
F1	Use Scaffolding		✓	✓	
F2	Use Access Equipment		✓		
Line G	PERFORM CONCRETE WORK	18%	40%	60%	100%
G1	Form Concrete		✓	✓	
G2	Place and Finish Concrete		✓	✓	
Line I	PERFORM UTILITIES AND PIPELINE TASKS	10%	50%	50%	100%
I1	Install Utility Piping		✓	✓	
Line J	PERFORM ROADWORK	6%	100%	0%	100%
J1	Install Paving Materials		✓		
J2	Install Roadwork Components		✓		
Total Percentage for Construction Craft Worker (Labourer) Level 1		100%			



Training Topics and Suggested Time Allocation

CONSTRUCTION CRAFT WORKER (LABOURER) – LEVEL 2

		% of Time Allocated to:			
		% of Time	Theory	Practical	Total
Line A	USE SAFE WORK PRACTICES	5%	100%	0%	100%
A1	Manage Workplace Hazards		✓		
A6	Use Safety Committees		✓		
Line B	ORGANIZE WORK	12%	50%	50%	100%
B1	Use Documentation, Blueprints and Specifications		✓	✓	
B3	Use Basic Trade Math		✓	✓	
Line D	PERFORM ROUTINE TRADE ACTIVITIES	10%	50%	50%	100%
D4	Establish Grades and Elevations		✓	✓	
Line E	PERFORM SITE WORK	18%	60%	40%	100%
E1	Prepare Site		✓		
E2	Perform Ground Work		✓		
E3	Perform Demolition		✓	✓	
Line F	USE SCAFFOLDING AND ACCESS EQUIPMENT	13%	40%	60%	100%
F1	Use Scaffolding		✓	✓	
Line G	PERFORM CONCRETE WORK	20%	40%	60%	100%
G1	Form Concrete		✓	✓	
G2	Place and Finish Concrete		✓	✓	
G3	Modify Concrete		✓	✓	
G4	Install Grout, Epoxies and Caulking		✓	✓	
Line H	PERFORM MASONRY WORK	10%	100%	0%	100%
H1	Prepare Masonry Work		✓		
H2	Tend to Bricklayers		✓		
Line I	PERFORM UTILITIES AND PIPELINE TASKS	12%	100%	0%	100%
I1	Install Utility Piping		✓		
I2	Perform Pipeline Activities		✓		
I3	Perform Pipeline Maintenance		✓		
Total Percentage for Construction Craft Worker (Labourer) Level 2		100%			



Section 3

PROGRAM CONTENT

Construction Craft Worker (Labourer)



Level 1

Construction Craft Worker (Labourer)



Line (GAC): A USE SAFE WORK PRACTICES

Competency: A1 Manage Workplace Hazards

Objectives

To be competent in this area, the individual must be able to:

- Describe worksite hazards
- Describe working in confined spaces
- Describe the assessment of worksite hazards
- Describe worksite safety policies
- Describe emergency procedures
- Describe the control of workplace hazards
- Describe the removal of hazardous materials
- Describe effective communication

LEARNING TASKS

1. Describe worksite hazards

CONTENT

- Acute and chronic medical conditions
- Sharp objects – glass and metal
- Overhead hazards / moving equipment
- Electrical
- Flammable and explosive materials
- Atmospheres
 - Flammable
 - Explosive
 - Oxygen deficient
- Environmental
 - Weather
 - Work area
- Slips, trips and falls
- Toxic substances
 - Biohazards
 - Heavy metals
 - Asbestos
 - Industry products
 - Mold
- Respiratory illness
 - Silicosis
 - Asbestos related illnesses
- Repetitive strain injuries
- Back injuries
- Excavations
- Working around heavy equipment
- Ladders
- Work platforms
- Transportation of dangerous goods
- Lockout procedures
- Compressed gas



LEARNING TASKS

2. Describe confined spaces

3. Describe equipment used when working in a confined space

4. Describe the assessment of worksite hazards

CONTENT

- Explosive material (dust)
- Lifting procedures
- Personal apparel
 - Clothing
 - Hair and beards
 - Jewellery
 - Housekeeping
- Horseplay
- Distractions
 - Head phones
 - Cell phones
- Respect for the safety of others
- Constant awareness of surroundings
- Safe attitude
- Management of hazards
- Weather
 - Heat and cold
- Confined space definition
 - Legal definition
 - Health and safety definition
 - Hazard classifications
- Levels of confined space certification
- Section 9 of Occupational Health and Safety (OHS)
- Responsibilities of worker and employer
- Procedures
 - Access / egress
 - Hole/fire watch
 - Air quality testing
 - Lockout and isolation
 - Ventilation
 - Cleaning / purging / venting / inerting
 - Rescue procedures
- Entry permits
- Ventilation systems
- Ladders
- Tripods
- Harnesses
- Air testers
- As per job requirements
- Field level risk assessment



Line (GAC): **A USE SAFE WORK PRACTICES**
Competency: **A2 Apply OHS Regulations and WorkSafeBC Standards**

Objectives

To be competent in this area, the individual must be able to:

- Locate terms used in the Workers' Compensation Act and under which conditions compensation will be paid
- Locate general duties of employers, employees and other
- Locate the Workers' Compensation Act requirements for the reporting of accidents
- Locate the "Core Requirements" of the Occupational Health and Safety (OHS) Regulation
- Locate the "General Hazard Requirements" of the OHS Regulation
- Describe Occupational Health and Safety information relevant to the Construction Craft Worker (Labourer) Trade
- Describe procedures for obtaining safety permits and certificates

LEARNING TASKS

1. Locate terms used in the Workers' Compensation Act
2. Locate conditions under which compensation will be paid
3. Locate general duties of employers, employees and others
4. Locate Workers Compensation Act requirements for the reporting of accidents
5. Locate the "Core Requirements" of the OHS Regulation

CONTENT

- Definitions, Section 1 of the Act
- Part 1, Division 2 of the Act
- Part 3, Division 3, Sections 115-124
- Part 1, Division 5, Sections 53 and 54 of the Act
- Definitions
- Application
 - Rights and responsibilities
 - Health and Safety Programs
 - Investigations and reports
 - Workplace inspections
 - Right to refuse unsafe work
 - Recognition, correction and reporting of unsafe work conditions and practices
- General conditions
 - Building and equipment safety
 - Emergency preparedness
 - Preventing violence
 - Working alone
 - Ergonomics
 - Illumination
 - Indoor air quality
 - Smoking



LEARNING TASKS

6. Locate the “General Hazard Requirements” of the OHS Regulation

7. Describe Occupational Health and Safety information that is relevant to the Construction Craft Worker (Labourer) trade

8. Describe procedures for obtaining safety permits and certificates

CONTENT

- Chemical and biological substances
- Substance specific requirements
- Noise, vibration, radiation and temperature
- Personal protective clothing and equipment
- Confined spaces
- De-energization and lockout
- Fall protection
- Tools, machinery and equipment
- Ladders, scaffolds and temporary work platforms
- Rigging and hoisting equipment
- Mobile equipment
- Transportation of workers
- Traffic control
- Electrical safety
- As per documentation

- Construction Safety Training System (CSTS)
- WHMIS certification
- Confined space awareness training
- Other certificates and permits



Line (GAC): **A USE SAFE WORK PRACTICES**
Competency: **A3 Use Fall Protection Systems and Equipment**

Objectives

To be competent in this area, the individual must be able to:

- Describe fall protection equipment
- Describe fall protection systems
- Describe fall protection plans
- Inspect, assemble and disassemble fall protection equipment and systems
- Use a harness

LEARNING TASKS

1. Describe fall protection equipment

2. Describe fall protection systems

CONTENT

- Fall arrest / restraint / work positioning equipment
 - Beam roller
 - Lanyard
 - Carabiner
 - Shock-absorbing devices
 - Retractable devices
 - Rope grab
 - Vertical and horizontal lines
 - Cable / nylon tie-off slings
 - Harness
- Equipment standards (CSA, ASTM, ANSI)
- Inspection and maintenance
- Worksite awareness
- Occupational Health and Safety (OHS) Regulations, Part 11
- Railings / scaffolds
- Barricades and control zones
- Safety monitor
- Nets
- Hardware
- Anchor points
- Assembly
- Ladder systems
- Vertical and horizontal systems



- | | |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3. Describe the development of a fall protection plan</p> | <ul style="list-style-type: none"> • Identify work area and hazards • List and choose equipment • Rescue procedures • Hierarchy of fall protection procedures • Requirements for a written plan |
| <p>4. Inspect, assemble and disassemble fall protection equipment and systems</p> | <ul style="list-style-type: none"> • OHS Regulations, Part 11 • Assembly / disassembly • Routine / scheduled inspection and maintenance <ul style="list-style-type: none"> ○ Required reference material |
| <p>5. Use a harness as per industry standards</p> | <ul style="list-style-type: none"> • Inspection • Use • Specifications <ul style="list-style-type: none"> ○ D-ring positioning ○ Snugness of fit • Buddy system |

Achievement Criteria

- Performance The learner will:
- Assemble equipment
 - Identify anchor point
 - Put on harness
 - Perform buddy check
 - Use equipment

- Conditions The learner will be given:
- PPE
 - Harness
 - Connecting devices
 - Anchoring point

- Criteria The learner will be evaluated on:
- Fit of the harness
 - Performance of all necessary inspections
 - Correct placement of connections
 - Effective communication

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



LEARNING TASKS

3. Describe the use of fire extinguishers

CONTENT

- Personal safety
- Knowledge of equipment
 - Inspection / date tags
- Awareness of fire suppression/fighting systems
- PASS
 - Pull
 - Aim
 - Squeeze
 - Sweep



Line (GAC): A USE SAFE WORK PRACTICES

Competency: A7 Perform Safety Watch

Objectives

To be competent in this area, the individual must be able to:

- Describe monitoring hazardous gases
- Describe performing spark watch, bottle watch and confined space watch
- Describe monitoring heaters

LEARNING TASKS

1. Describe monitoring hazardous gases

2. Describe performing spark watch

CONTENT

- Governmental and site-specific rules and regulations
- Types and characteristics of gases
 - Hydrogen sulphide (H₂S)
 - Carbon monoxide (CO)
 - Methane (CH₄)
- Areas to be monitored
- Work being performed
- Types of equipment
 - Selection
 - Usage
- Permissible exposure levels
- Time weighted averages
- Evacuation plans
- Readings and alarms on equipment
- Zero monitoring equipment
- Recording of readings
- Alert others when atmospheric conditions change
- Governmental and site-specific rules and regulations
- Area where work is being performed
- Work being performed
 - Welding
 - Cutting
 - Grinding
- Combustible and non-combustible materials
- Evacuation plans
- Assessing and responding to conditions
 - Using fire extinguishers
 - Alerting others to evacuating jobsite
 - Calling emergency services



LEARNING TASKS

5. Describe monitoring heaters

6. Describe man (worker) watch

CONTENT

- Recording readings
- Assessing and responding to conditions
 - Calling emergency and rescue services
- Propane certification
- Types of heaters
 - Propane
 - Electric
 - Radiant
- Governmental regulations and jobsite specific rules
- Gauge readings
- Keeping heaters operating
- Inspection of heaters and their surroundings
- Recognize hazards
 - Melting tarpaulins
 - Fires
 - Leaks
- Site specific considerations
 - Location
 - Hazards
 - Isolation
 - Wildlife
- Risk level of work being performed
- Safety monitor program



Line (GAC): **B ORGANIZE WORK**
Competency: **B1 Use Documentation, Blueprints and Specifications**

Objectives

To be competent in this area, the individual must be able to:

- Describe types and uses of drawings
- Describe the alphabet of lines, symbols and abbreviations
- Describe the parts of the drawings
- Interpret documents, drawings and specifications

LEARNING TASKS

1. Describe types and uses of drawings

2. Describe the alphabet of lines, symbols and abbreviations used in drawings

3. Describe the parts of the drawings

4. Interpret documents, drawings and specifications

CONTENT

- Views
 - Plan
 - Section
 - Elevation
- Lines
- Symbols
- Abbreviations
- Title block
- Insets
- Legends
- Orientation
- Alphabet of lines
- Symbols
- Abbreviations
- Views

Achievement Criteria

Performance The learner will interpret a set of drawings / sketches.

Conditions The learner will be given:

- A set of drawings
- Task specifications

Criteria The learner will be evaluated on the transfer of information. Tasks must be performed within specifications and time frames acceptable to industry and the learner must achieve a minimum grade of 70%.



Line (GAC): **B** **ORGANIZE WORK**
Competency: **B2** **Communicate with Others**

Objectives

To be competent in this area, the individual must be able to:

- Describe various modes of communication

LEARNING TASKS

1. Describe various modes of communication

CONTENT

- Trade terminology
- Types of communications
 - Verbal
 - Written
 - Hand signals
- Roles
 - Customers
 - Supervisors
 - Co-workers
 - Safety reps
 - Operations staff
 - Other tradespersons
 - Apprentices
- Public relations
- Equipment
 - Radios
 - Cell phones
 - Plant phones
 - Air horns
 - Whistles
- Documenting jobsite issues



Line (GAC): **B ORGANIZE WORK**
Competency: **B3 Use Basic Trade Math**

Objectives

To be competent in this area, the individual must be able to:

- Use fractions, decimal fractions and formulas to solve problems
- Solve problems of ratio and proportion
- Convert between metric and imperial measurements

LEARNING TASKS

1. Use fractions to solve problems
2. Use decimal fractions to solve problems
3. Solve problems of ratio and proportion
4. Convert between metric and imperial measurements
5. Solve problems using formulas

CONTENT

- Add, subtract
- Simplify fractions
- Add, subtract, multiply, divide
- Convert between decimals and fractions
- Decimal notation
- Ratio
- Proportion
- Unknown quantities
- Metric and imperial conversion
- Use of conversion table
- Volume
- Area

Achievement Criteria

Performance The learner will solve simple problems, including:

- Converting between metric and imperial
- Calculating ratio and proportion
- Calculating volume and area

Conditions The learner will be given:

- Calculators
- Conversion table
- Worksheets

Criteria The learner will be evaluated on accuracy of calculations. Tasks must be performed within specifications acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C1 Use Hand Tools

Objectives

To be competent in this area, the individual must be able to:

- Describe the use of hand tools

LEARNING TASKS

1. Describe the use of hand tools

CONTENT

- Safety
- Types of hand tools (Refer to tool list in Appendix D)
- Sharpening techniques
- Organization
- Procedures / operations
- Care and maintenance
- Storage
- Inspection



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C2 Use Power Tools

Objectives

To be competent in this area, the individual must be able to:

- Use power tools

LEARNING TASKS

1. Describe the use of power tools

2. Use power tools

CONTENT

- Types (refer to tool list in appendix)
 - Gas and electric tools
 - Hydraulic tools
 - Pneumatic tools
 - Purpose
- Parts
- Training requirements
- Tool selection for the task
- Inspection
- Set-up
- Safe procedures / operation
- Care and maintenance
 - Sharpening techniques
 - Monitor / lubricate moving parts
 - Replace components
 - Storage
- Safety and PPE
- Following manufacturers' specifications
- Tool selection for the task
- Inspection
- Set-up
- Safe procedures / operation
- Storage

Achievement Criteria

Performance The learner will perform a task using a power tool.

Conditions The learner will be given:

- PPE
- Power tool
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Selecting the correct PPE
- Selecting the correct tool
- Adherence to task specifications



- Proficiency

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C3 Use Powder-Actuated Tools

Objectives

To be competent in this area, the individual must be able to:

- Describe the use of powder-actuated tools

LEARNING TASKS

1. Describe the use of powder-actuated tools

CONTENT

- Types (refer to tool list in appendix)
 - Manually operated
 - Trigger operated
 - Purpose
- Parts and accessories
- Training requirements / awareness
- Tool selection for the task
- Base materials
- Inspection
- Set-up
- Safe procedures / operation
 - Follow manufacturers' specifications
 - Powder charge
 - Fastener selection
- Care and maintenance
 - Monitor / lubricate moving parts
 - Replace components
 - Storage



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C6 Use Mobile Equipment

Objectives

To be competent in this area, the individual must be able to:

- Describe the use of mobile equipment

LEARNING TASKS

1. Describe the types and function of mobile equipment

2. Describe the safe use of mobile equipment

CONTENT

- Ride-on compactors
- Skid steer (Bobcat)
- Forklift
- Scissor lifts (Skyjack)
- Telehandlers
- Concrete buggies
- Mini-excavators
- PPE
- Certification requirements
- Hazards
- Following manufacturers' specifications
 - No modifications
- Select correct equipment for the task
- Operational procedures
- Pre-trip inspection
 - Documentation
- Periodic inspection
 - Walk around
 - Overhead lines
 - Exhaust
 - Ventilation
- Removal of defective equipment
 - Lockout and tag-out
- Communication
 - Warn others / secure area
 - Conflicting jobs
 - Hazard communication
- Compatibility of components
- Maintenance
 - Fluids
 - Belts, radiators
 - Parking



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C7 Use Sandblasters

Objectives

To be competent in this area, the individual must be able to:

- Describe the use of sandblasters

LEARNING TASKS

1. Describe types and functions of sandblasters
2. Describe the safe use of sandblasters
3. Describe environmental considerations

CONTENT

- Components
 - Compressed air
 - Supplied air
 - Nozzle
 - Mask
- Surface types
 - Metal
 - Concrete
 - Glass
 - Pipe (painted)
- Safety
 - PPE
 - Supplied air
 - Filters
 - Whip checks
 - Dead-man switch
- Secure area
 - Hoarding
 - Line of Fire
- Material Safety Data Sheets (MSDS)
- Sparks
- Ergonomics
- Type of blasting media
 - Silica sand
 - Ground up glass
 - Nut shells
- Rate of flow
 - Pressure
 - Manufacturer's specs
- Dust collection
- Reclaiming media
- Containment



Line (GAC): C USE TOOLS AND EQUIPMENT

Competency: C8 Use Packers

Objectives

To be competent in this area, the individual must be able to:

- Use packers

LEARNING TASKS

1. Describe types of packers

2. Describe the safety considerations for the use of packers

3. Use packers

CONTENT

- Double drum roller (Bomag)
- 1000 pounder (Whacker)
- Plate tamper
- Jumping jack
- Pogo
- PPE
 - Safety glasses
 - Safety footwear
 - Earplugs
- Following manufacturers' specifications
 - Fuel selection
- Ground conditions
- Running conditions
- Pinch point bite
- Safety feature inspection
 - Kill switch
- Site hazards
 - Edges
- Starting / stopping procedures
 - Check fluids and maintain levels
 - Start on idle
 - Storage
- Material compaction
 - Lift thickness
 - Number of passes
- Desired density of compacted material
- Direction of operation



Achievement Criteria

Performance The learner will use packers.

Conditions The learner will be given:

- PPE
- Packer
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Awareness of soil conditions
- Adherence to task specifications

Tasks must be performed within specifications acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): D **PERFORM ROUTINE TRADE ACTIVITIES**
Competency: D2 **Erect and Dismantle Hoarding/Enclosures**

Objectives

To be competent in this area, the individual must be able to:

- Describe the erection and dismantling of hoarding / enclosures

LEARNING TASKS

1. Describe the types and functions of hoarding / enclosures
2. Describe the erection and dismantling of hoarding / enclosures

CONTENT

- Materials
 - Insulated tarpaulins
 - Polyethylene
 - Plywood
- Applications
 - Temperature control
 - Enclosing scaffolding
 - Concrete formwork
 - Environmental protection
 - Privacy
 - Protection of public
- Safety
 - PPE
 - Hazards
- Framework
 - Scaffolding
 - Existing structures
 - Wood
- Secure
 - Wire
 - Nails
 - Rope
 - Cable
 - Weights
- Access and egress



Line (GAC): D **PERFORM ROUTINE TRADE ACTIVITIES**
Competency: D3 **Perform Traffic Control**

Objectives

To be competent in this area, the individual must be able to:

- Describe traffic control

LEARNING TASKS

1. Describe traffic control

CONTENT

- Safety
 - PPE
 - Hazards
- Training and certification requirements
- Regulations
- Duties of flagperson
- Worksites
 - Roadwork
 - Utility installation
 - Concrete placement
 - Occupied buildings
- Types of travel restrictive systems
 - Barricades
 - Flagging
 - Barriers
 - Guardrails
 - Covered walkways
 - Detours for vehicles and pedestrians
 - Temporary signs, signals and pylons



Line (GAC): D PERFORM ROUTINE TRADE ACTIVITIES

Competency: D4 Establish Grades and Elevations

Objectives

To be competent in this area, the individual must be able to:

- Describe grades and elevations

LEARNING TASKS

1. Describe grades and elevations

CONTENT

- Applications
 - Site layout
 - Excavation and grading
 - Roadwork
 - Utilities
 - Concrete placement
- Plans and specifications
- Tools and equipment
 - Metal detectors
 - Builders' and laser levels
 - Theodolites
- Elevations and grades
 - Geodetic
 - Site specific
- Temporary benchmarks
 - Fire hydrants
 - Nail and ribbon
 - Grade stakes
- Permanent benchmarks
 - Monuments
 - Legal property pins



Line (GAC): D **PERFORM ROUTINE TRADE ACTIVITIES**
Competency: D5 **Handle Materials**

Objectives

To be competent in this area, the individual must be able to:

- Describe the handling of construction materials

LEARNING TASKS

1. Describe the handling of construction materials

CONTENT

- Types of construction materials
 - Lumber
 - Soil
 - Piping
 - Concrete
 - Masonry units
- Storage
- Environmental exposure
- Chemical exposure
- Manual lifting procedures
- Transport
- Hazards for handling / storing
 - Propane tanks
 - Oxy-acetylene tanks
- Secure materials
 - Propane tanks
 - Pipes
 - Lumber



Line (GAC): D **PERFORM ROUTINE TRADE ACTIVITIES**
Competency: D7 **Install Insulating Materials**

Objectives

To be competent in this area, the individual must be able to:

- Describe the installation of insulating materials

LEARNING TASKS

1. Describe the installation of insulating materials

CONTENT

- Types of insulating materials
 - Styrofoam
 - Fireproofing materials
 - Straw
 - Fibreglass
- Applications
 - Preventing underground piping, sewers, and concrete from freezing
 - Structures
- Following manufacturers' specifications
- Engineering requirements
- Installation process
 - Cut
 - Secure
 - Tape
 - Spray-on



Line (GAC): E **PERFORM SITE WORK**

Competency: E1 **Prepare Site**

Objectives

To be competent in this area, the individual must be able to:

- Describe clearing sites
- Describe setting up site facilities

LEARNING TASKS

1. Describe clearing sites

CONTENT

- Regulations & requirements
 - Safety
 - Government regulations
 - Permits
 - Environmental
 - Pre job-hazard assessments
- Pre-existing site conditions
 - Existing utilities
 - Areas to protect prior to work being performed
- Worksite and set-up requirements
 - Locations of temporary buildings and fencing
 - Colour-coded flags and markers used to locate utilities
- Bring site to working condition
 - Removing unusable materials and debris
 - Clearing brush
 - Stripping existing asphalt, concrete, topsoil and rocks



2. Describe setting up site facilities

- Temporary fuel storage
- Temporary utilities
 - Water and sewer
 - Electrical systems
- Place and level facilities
 - Laydown area
 - Work and warehouse trailers
 - Lunch rooms
 - Washrooms
 - First aid trailer
- Install stairs and temporary connecting platforms to trailers
- Place safety equipment in specified locations
 - Air horns
 - Fire extinguishers
 - Eye wash stations
 - First aid kits



- 3. Describe backfill and compaction
 - Safety requirements
 - Backfill material needed
 - Type
 - Gravel
 - Sand
 - Fillcrete
 - Amount
 - Assessment
 - Types and thickness of finished road surface
 - Moisture content and compaction rates
 - Use of water during compaction
 - Bulking
 - Guide Heavy Equipment Operator in operations
 - Finishing roadwork sub-grade
 - Compactable lifts
 - Excavation components
 - Weeping tiles
 - Culverts
 - Manholes
 - Piping
 - Follow backfill and compaction procedures according to applications
 - Covering utilities
 - Installing shoring
 - Preparing to pour concrete

- 4. Demonstrate excavation/backfill of a trench for utilities
 - Excavate to grade
 - Tools
 - Material
 - Backfill and compaction procedures

**Achievement Criteria (This task can be combined with I1)**

Performance The learner will excavate and / or backfill a trench for utilities to a specific grade.

Conditions The learner will be given:

- PPE
- Materials and tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Tool selection
- Tool usage
- Accuracy
- Adherence to task specifications

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): E **PERFORM SITE WORK**

Competency: E3 **Perform Demolition**

Objectives

To be competent in this area, the individual must be able to:

- Describe cutting materials
- Describe dismantling structures and components

LEARNING TASKS

1. Describe cutting materials

CONTENT

- Safety
 - Hazards
 - PPE
 - Selection and useage of dust control methods
 - Spark control methods
- Types of materials
- Techniques
 - Dismantling
- Governmental and jobsite rules and regulations
- Turn off utilities
 - Water
 - Electrical
- Test utilities to ensure they are de-energized
- Operating methods
 - Follow manufacturers' specifications
 - Oxy-acetylene and propane torches
 - Igniting
 - Setting and reading gauges
 - Selecting tip types
 - Extinguishing torch
- Attachments



2. Describe the dismantling of structures and components
 - Material to be removed from specific job-sites
 - Removal techniques
 - Sequencing
 - Government and jobsite rules and regulations
 - Selection of attachments
 - Load bearing walls and other structural components
 - Set up chutes and bins for disposal
 - Selection and useage of dust control methods
 - Spark control methods
 - Isolation or lockout / tag-out utilities
 - Water
 - Electrical



Line (GAC): E **PERFORM SITE WORK**
Competency: E5 **Service Site**

Objectives

To be competent in this area, the individual must be able to:

- Describe cleaning a site and job facilities
- Describe controlling water runoff
- Describe the set-up of temporary lighting, power, generators and compressors
- Describe site restoration
- Describe tool crib attendant duties
- Describe recycling materials

LEARNING TASKS

1. Describe cleaning a site

CONTENT

- Materials used in construction
- Company or site-specific procedures for controlled materials
- Material that can be used or reused in other applications
- Store material in identified locations
- Selection and use of dust control methods
- Dispose of materials according to site rules
- Recognize and control hazards by performing actions
 - Removing tripping hazards
 - Cleaning spills
 - Rerouting cords
 - Notifying authority as needed
- Weather conditions
 - Removing snow
 - De-icing
 - Ensuring material is secured in windy conditions
- Control ground contamination by using spill kits



2. Describe cleaning jobsite facilities
 - PPE
 - Types of facilities and corresponding procedures
 - Biohazardous materials
 - Hazards associated with cleaning products
 - Site-specific requirements
 - Vaccination
 - Hazardous material protection
 - Cleaning techniques
 - Disposal of waste and cleaning products according to established procedures

3. Describe the control of water runoff
 - Government and site-specific rules and regulations
 - Preventative measures
 - Grass mats
 - Grading
 - Installing environmental fencing
 - Other barriers to prevent environmental contamination
 - Control damage
 - Dig trenches and build berms
 - Settling pond

4. Describe the set-up of portable equipment
 - Temporary lighting and power
 - String lights
 - Generators and compressors



- 5. Describe site restoration
 - Demolition procedures
 - Government and jobsite rules and regulations
 - Protected areas prior to work being performed
 - Controlled zones and shielding
 - Document original conditions of jobsite for restoration and other purposes
 - Restoration activities
 - Replacing landscaping
 - Replacing removed material and equipment

- 6. Describe tool crib attendant duties
 - Tools, equipment, supplies and consumables
 - Security requirements
 - Inventory control
 - Sign-out and sign-in tools and equipment
 - Maintenance and minor repairs on tools and equipment
 - Organization

- 7. Describe recycling materials
 - Government and company-specific rules and regulations
 - Materials
 - Sort and store recycled materials
 - Prepare recycled materials for shipping
 - Identify materials that can be reused onsite
 - Forms
 - Plywood
 - Steel



Line (GAC): F USE SCAFFOLDING AND ACCESS EQUIPMENT

Competency: F1 Use Scaffolding

Objectives

To be competent in this area, the individual must be able to:

- Describe the erection, inspection, maintenance and dismantling of frame and brace scaffolding
- Describe tending to scaffold erectors

LEARNING TASKS

1. Describe the erection of scaffolding

CONTENT

- Government codes and regulations
- Jobsite specific rules
- Types
 - Baker's
 - Frame and brace
 - Mast climber system
 - Tube and clamp
 - System scaffolding
- Components
 - Outriggers
 - Hardware
 - Fasteners
- Brace and platform sizes
- Securing for stability
- Bracing
- Working around obstacles
 - Stairwells
 - Open holes
 - Columns
- Secure and level base
 - Mud sills
 - Bases
 - Shimming
- Raising scaffolding components
 - Hand bombing
 - Rigging
- Counterweights and secure scaffold systems



2. Describe the inspection of scaffolding
 - Government codes and regulations
 - Jobsite specific rules
 - Components
 - Planking
 - Outriggers
 - Fasteners
 - Overhang limitations when working with planking
 - Tagging requirements for access
 - Safety inspection requirements
 - Visual checks
 - Welds
 - Bracing components
 - Planks
 - Visual identification of faults
 - Stress cracks
 - Warps
 - Bent bracing
 - Bent framing
 - Tag components for repair or replacement
 - Removal of defective components and scaffolding from service
3. Describe the maintenance of scaffolding
 - Requirements
 - Cleaning
 - Lubrication of screw jacks
 - Platform maintenance
 - Greasing of motorized and mechanical scaffolding
4. Describe tending to scaffold erectors
 - Governmental codes and regulations
 - Jobsite requirements
 - Brace and platform sizes
 - Tools, equipment and components to be passed to scaffold erectors
 - Raising scaffolding components
 - Hand bombing
 - Rigging
5. Describe dismantling scaffolding
 - Starting point and procedure for dismantling
 - Lowering scaffolding components
 - Hand bombing
 - Rigging
 - Preparing scaffolding components for shipping



- | | |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Demonstrate the erection of scaffolding | <ul style="list-style-type: none"> • Frame and brace <ul style="list-style-type: none"> ○ Safety ○ Components ○ Procedure ○ Tools |
| 7. Demonstrate the dismantling of scaffolding | <ul style="list-style-type: none"> • Frame and brace <ul style="list-style-type: none"> ○ Safety ○ Components ○ Procedure ○ Tools |

Achievement Criteria

Performance The learner will erect and dismantle frame and brace scaffolding.

Conditions The learner will be given:

- PPE
- Material and tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Assembly and disassembly
- Plumb and level
- Accuracy
- Storage
- Inventory

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): F USE SCAFFOLDING AND ACCESS EQUIPMENT
Competency: F2 Use Access Equipment

Objectives

To be competent in this area, the individual must be able to:

- Describe the use, inspection and maintenance of ladders
- Describe the use, inspection and maintenance of power-elevated work platforms and access equipment

LEARNING TASKS

1. Describe use, inspection and maintenance of ladders

CONTENT

- Types
 - Extension
 - Platform
 - Stepladders
 - Job built
- Regulations
 - Construction
 - Placement
 - Ratio (1:4)
 - 3-point contact
 - Overhang
 - Kickplates
- Capabilities and applications
- Limitations and hazards
- Assessment and preparation of the ground
- Safety inspection requirements
- Identification of ladder defects
 - Bent rungs
 - Split rails
 - Cracks
- Cleaning of ladder rungs



2. Describe use, inspection and maintenance of power-elevated work platforms and access equipment
 - Types
 - Scissor lifts
 - Bucket lifts
 - Swing stages
 - Boom lifts
 - Training and certification requirements
 - Pre-operation and safety inspection
 - Visual examination of components
 - Hydraulic lines
 - Batteries
 - Nuts
 - Bolts
 - Cables
 - Outriggers
 - Emergency shut off
 - Identification of faults
 - Cracking
 - Leaks in lines
 - Corrosion
 - Fraying cables
 - Tagging of components for repair or replacement
 - Equipment limitations
 - Weight capacities
 - Assessment and preparation of the ground
 - Setting of outriggers and pads
 - Counterweights for swing stages
 - Operating procedures
 - Controls
 - Emergency switches
 - Outrigger
 - Gas / propane switches
 - Hydraulic
 - Greasing of components
 - Cleaning of work platforms
 - Maintain equipment batteries
 - Charge
 - Water level
 - Refuelling of gas and diesel powered work platforms
 - Maintain fluids
 - Hydraulic
 - Oils



LEARNING TASKS

3. Demonstrate the setting of edge forms

CONTENT

- Inspection
 - Recognize defects
 - Verify elevations and layout
 - Verify forms for the desired finish
- Maintaining
 - Ratings and applications
 - Inspect disassembled components for deficiencies and damage
 - Release agents
 - Components in order to reuse them
 - Tighten fasteners
 - Storage
- Dismantling
 - Procedures and sequences
 - Prepare plans
 - Organize components for reuse or transport
- Sequencing
- Bracing
- Safety

Achievement Criteria

Performance The learner will set edge forms.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Sequencing
- Bracing

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.

**Achievement Criteria**

Performance The learner will place and finish concrete flat work.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Sequencing
- Tool usage

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): I **PERFORM UTILITIES AND PIPELINE TASKS**
Competency: I1 **Install Utility Piping**

Objectives

To be competent in this area, the individual must be able to:

- Describe the installation of pipe for water systems
- Describe the installation of pipe for sewer systems
- Describe the installation of utility components
- Demonstrate cutting and installing pipe

LEARNING TASKS

1. Describe the installation of pipe for water systems

CONTENT

- Types
 - Plastic
 - Ductile
- Safety
 - PPE
 - Rigging
 - Pinch points
 - Pressurized water
- Connection methods
 - Fused
 - Bell and spigot
 - Primer and glue
 - Mechanical joints
- Assisting in directional drilling to avoid disruptions on highways and rivers
- Bedding material
 - Pea gravel
 - Sand
- Insulation
- Backfill material
- Installation of thrust blocks to eliminate line breaks
- Selecting, cutting, and fitting sections according to plans and specifications
- Assist in testing and flushing of waterline



2. Describe the installation of pipe for sewer systems
 - Types of sewer lines
 - Sanitary
 - Storm
 - Drainage
 - Types of pipe
 - Plastic
 - Concrete
 - Galvanized
 - Connecting sewer pipe sections
 - Bell and spigot
 - Butt fusion
 - Clamps
 - Components
 - Bedding material, insulation and backfill material
 - Selecting, cutting and fitting sections according to plans and specifications

3. Describe the installation of utility components
 - Types of water pipe components
 - Hydrants
 - Restraints
 - Fittings
 - Types of sewer pipe components
 - Manholes
 - Catch basins
 - Lawn basins
 - Fittings
 - Manhole construction
 - Establishing and maintaining grades of components
 - Establishing and installing bases
 - Pre-cast concrete
 - Poured concrete
 - Cutting holes in catch basins and manholes
 - Level and plumb components
 - Connecting pipe to components
 - Attaching rigging equipment for manholes

4. Demonstrate cutting and installing pipe
 - Safety
 - Sequence
 - Tools
 - Materials

**Achievement Criteria (This task can be combined with E2)**

Performance The learner will cut and install pipe.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Sequence
- Adherence to task specifications
- Tool use
- Material usage

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): J PERFORM ROADWORK
Competency: J1 Install Paving Materials

Objectives

To be competent in this area, the individual must be able to:

- Describe road construction
- Describe placement of paving materials
- Describe modification of existing paving materials

LEARNING TASKS

1. Describe construction of road before paving

2. Describe placement of paving materials

3. Describe modification of existing paving materials

CONTENT

- Clearing the area
- Cutting and filling to grade
 - Stake installation
- Placing gravels
- Compaction
- Final elevation check
- Hazards
 - Burns
 - Exposure to chemicals
 - Traffic
 - Heavy duty mobile equipment
- Chemical additives
- Location of manholes and catch basins
- Rake paving to base (sub) and finish-grade
- Feathering around components
 - Manholes
 - Catch basins
 - Curbs
- Manually compacting paving material
- Applying adhesives, primers and sealers
- Amount of paving material to remove when repairing
- Cutting asphalt to install utilities and components
- Repairing defects
 - Pot holes
 - Cracks
- Applying adhesives and primers
- Digging out loose material, replacing with gravel, then compacting



3. Describe the installation of culverts

- Types
 - Galvanized steel
 - Plastic
 - Concrete
- Sizes
- Connection methods
 - Bell and spigot
 - Clamped
 - Butt fusion
- Section assembly
- Bedding installation
- Design grade
- Backfill and compaction
- Rip-rap installation



Level 2

Construction Craft Worker (Labourer)



Line (GAC): A USE SAFE WORK PRACTICES

Competency: A1 Manage Workplace Hazards

Objectives

To be competent in this area, the individual must be able to:

- Describe hazards associated with specialty worksites, including
 - Hydroelectric dams
 - Mining
 - Tunnels
 - Bridges
 - Railways

LEARNING TASKS

1. Describe hazards associated with specialty worksites

2. Describe regulations for specialty sites

3. Describe safety equipment for specialty sites

CONTENT

- Hydroelectric dams
- Mining / tunnels
 - Cave-ins
 - Derailments
 - Isolation / working alone
 - Communication difficulties
- Bridges
 - Working around water
 - Fall protection
- Railways
- Specialty Acts (legislation)
- Emergency protocols
- Headlamp
- Self-rescuer
- Life jackets
- Rescue boat
- Netting



Line (GAC): A USE SAFE WORK PRACTICES

Competency: A6 Use Safety Committees

Objectives

To be competent in this area, the individual must be able to:

- Describe participation in safety committees

LEARNING TASKS

1. Describe participation in safety committees

CONTENT

- OHS Regulation and WorkSafeBC Standards
- Function of committees
- Makeup and size
- Role of members
- Legal responsibilities
- Inspections and investigations
- Meetings and minutes
- Education and training
- Orientation processes
- Toolbox meetings
 - Purpose
 - Content
 - Scheduling
- Site inspections
 - Identification of hazards
 - Recommendations
 - Remedies



Achievement Criteria

Performance The learner will draw a layout sketch.

Conditions The learner will be given:

- Tools
- Materials
- Task specifications

Criteria The learner will be evaluated on:

- Accuracy
- Interpretation of specifications

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): **B ORGANIZE WORK**
Competency: **B3 Use Basic Trade Math**

Objectives

To be competent in this area, the individual must be able to:

- Use fractions, decimal fractions and formulas to solve complex problems
- Solve complex problems of ratio and proportion
- Convert between metric and imperial measurements

LEARNING TASKS

1. Use fractions to solve complex problems
2. Use decimal fractions to solve complex problems
3. Solve complex problems of ratio and proportion
4. Convert between metric and imperial measurements
5. Solve complex problems using formulas

CONTENT

- Addition, subtraction
- Simplifying fractions
- Add, subtract, multiply, divide
- Converting between decimals and fractions
- Decimal notation
- Ratio
- Proportion
- Unknown quantities
- Converting between metric and imperial
- Conversion table
- Volume
- Area

Achievement Criteria

Performance The learner will solve complex problems:

- Convert between metric and imperial
- Calculate ratio and proportion
- Calculate volume and area

Conditions The learner will be given:

- Calculators
- Conversion table
- Worksheets

Criteria Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): **D PERFORM ROUTINE TRADE ACTIVITIES**
Competency: **D4 Establish Grades and Elevations**

Objectives

To be competent in this area, the individual must be able to:

- Establish grades and elevations

LEARNING TASKS

1. Establish grades and elevations

CONTENT

- Applications
- Plans and specifications
- Tools and equipment
- Elevations and grades
- Temporary benchmarks
- Permanent benchmarks
- Legal property pins
- Sub and finish grades

Achievement Criteria

Performance The learner will establish grades and elevations.

- Conditions** The learner will be given:
- PPE
 - Survey equipment
 - Task specifications and drawings

- Criteria** The learner will be evaluated on:
- Safety
 - Adherence to task specifications
 - Equipment use
 - Accuracy

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): E **PERFORM SITE WORK**

Competency: E1 **Prepare Site**

Objectives

To be competent in this area, the individual must be able to:

- Describe building of access and egress roads

LEARNING TASKS

1. Describe building of access and egress roads

CONTENT

- Selection and use of tools and equipment
- Assisting in removal of existing material down to hard pan
- Selection of material according to specifications for road base, backfill and grades
- Road compaction according to site specifications
- Guiding road building machinery
 - Installing offset stake lines
 - Installing benchmarks



Line (GAC): E **PERFORM SITE WORK**
Competency: E2 **Perform Ground Work**

Objectives

To be competent in this area, the individual must be able to:

- Describe assisting in the installation of pilings

LEARNING TASKS

1. Describe assisting in the installation of pilings

CONTENT

- Location of pilings
 - On land
 - In water
- Safety and rescue regulations
- Soil types and designations
- Types of machinery
 - Pile drivers
 - Pile drillers
 - Cranes
- Types of pilings
 - Concrete
 - H-beam
 - Sheet
 - Steel
- Rigging requirements
- Setting up and dismantling piling machines
- Setting up machinery by connecting hoses and compressors
- Changing work environments
 - Working on boats and barges
 - Off sheet pilings
- Clearing debris out of piling holes
- Guiding pilings into position
- Measuring, modifying and placing rebar cages in pile holes
- Inspection of piles to ensure they are plumb and in position



Line (GAC): E PERFORM SITE WORK

Competency: E3 Perform Demolition

Objectives

To be competent in this area, the individual must be able to:

- Cut material using oxy-acetylene / propane torches
- Describe the identification of load bearing walls and other structural components

LEARNING TASKS

1. Cut material using oxy-acetylene / propane torches

2. Describe the demolition process

CONTENT

- Safety
- Storage and handling
- Oxy-acetylene
- Propane torch
- Safety
- Load bearing walls and other structural components
- Techniques
- Referring to
 - Drawings
 - Engineer assessment
 - Demolition plan
- Sequence for removal of structural elements
- Storage of materials
- Environmental concerns

Achievement Criteria

Performance The learner will cut material using an oxy-acetylene and / or propane torch.

Conditions The learner will be given:

- PPE
- Materials
- Equipment
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Adherence to task specifications
- Equipment use

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): F USE SCAFFOLDING AND ACCESS EQUIPMENT
Competency: F1 Use Scaffolding

Objectives

To be competent in this area, the individual must be able to:

- Demonstrate erecting and dismantling tube and clamp or system scaffolding

LEARNING TASKS

1. Describe the uses of tube and clamp and system scaffolding
2. Demonstrate the erection and dismantling of scaffolding

CONTENT

- Erection
- Inspection
- Maintenance
- Tending to erectors
- Dismantling
- Tube and clamp
- System scaffolding

Achievement Criteria

Performance The learner will erect and dismantle tube and clamp or system scaffolding.

Conditions The learner will be given:

- PPE
- Material
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Assembly and disassembly
- Plumb and level
- Accuracy
- Storage
- Inventory

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): **G PERFORM CONCRETE WORK**
Competency: **G1 Form Concrete**

Objectives

To be competent in this area, the individual must be able to:

- Describe forming concrete
- Demonstrate setting forms for pony walls

LEARNING TASKS

1. Describe forming concrete

2. Demonstrate setting forms for pony walls

CONTENT

- Installation
- Setting up
- Inspection
- Maintaining
- Dismantling
- Safety
- Accuracy
- Sequencing
- Bracing

Achievement Criteria

Performance The learner will set forms for pony walls.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Sequencing
- Bracing

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): **G PERFORM CONCRETE WORK**
Competency: **G2 Place and Finish Concrete**

Objectives

To be competent in this area, the individual must be able to:

- Place and finish concrete for a pony wall

LEARNING TASKS

1. Describe placing and finishing concrete for a pony wall

2. Demonstrate placing and finishing concrete for a pony wall

CONTENT

- Mixing
- Installing components
- Placement
- Vibration
- Assisting with finishing concrete
- Controlling concrete curing process

- Safety
- Accuracy
- Sequencing

Achievement Criteria

Performance The learner will place and finish a pony wall.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Tool use
- Sequencing

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.

**Achievement Criteria**

Performance The learner will perform remedial finishing.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Tool use
- Sequencing
- Bracing

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



- | | |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 4. Demonstrate mixing and installation of grout, epoxy or caulking | <ul style="list-style-type: none"> • Safety • Preparation • Installation • Curing |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|

Achievement Criteria

Performance The learner will perform mixing and installation of grout, epoxy or caulking.

Conditions The learner will be given:

- PPE
- Materials
- Tools
- Task specifications

Criteria The learner will be evaluated on:

- Safety
- Accuracy
- Tool use
- Material handling
- Adherence to task specifications

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.



Line (GAC): H PERFORM MASONRY WORK

Competency: H1 Prepare Masonry Work

Objectives

To be competent in this area, the individual must be able to:

- Describe the set-up of masonry materials
- Describe mixing mortars and grouts

LEARNING TASKS

1. Describe the set-up of masonry materials

2. Describe mixing mortars and grouts

CONTENT

- Safety
- Prepare and organize work area
- Materials
 - Bricks
 - Keyed
 - Insulating
 - Fire
 - Refractory materials
 - Manufactured stone
 - Tiles
 - Blocks
 - Acoustical
 - Veneer
 - Bullnose
 - Rough-faced
- Placement of raw materials
- Distribute materials onto scaffolding
 - Quantity
 - Weight capacity
- Contain spillage
 - Laying out polyethylene sheets
- Prepare power tools and equipment
- Load and unload masonry materials
- Types
- Following manufacturers' specifications
 - Ratios
 - Mixing time
 - Compatibilities
- Mixing required amount for work planned
- Determining consistency
- Adjusting mix to weather conditions
- Continuous working of mortar to maintain desired consistency
- Additives
 - Anti-freezing agents
 - Dyes
 - Admixtures



Line (GAC): H PERFORM MASONRY WORK

Competency: H2 Tend to Bricklayers

Objectives

To be competent in this area, the individual must be able to:

- Describe cutting masonry units
- Describe the installation of lintels and rough bucks
- Describe washing masonry units
- Describe assisting with the installation of refractory materials
- Describe the usage of fireproofing materials

LEARNING TASKS

1. Describe cutting masonry units

2. Describe the application and installation of lintels and rough bucks

3. Describe washing masonry units

CONTENT

- Cutting methods and tools
 - Brick saw
 - Guillotine
 - Chop saw
- Procedures
- Plan cuts to avoid waste
- Types of lintels
 - Channel iron
 - Wood
 - Pre-cast
 - Poured concrete
- Applications of rough bucks
 - Window
 - Door frames
- Installation of lintels and rough bucks
- Hazards
 - Inhalation of chemicals
 - Chemical burns
 - Equipment in motion
 - Mixing
- Cleaning agents
 - Muriatic acid
 - Water
- Following manufacturers' specifications
- Applications of washing
 - Mortar
 - Efflorescence
 - Epoxy
 - Grout
- Environmental considerations
- Final rinse



Line (GAC): I **PERFORM UTILITY AND PIPELINE TASKS**
Competency: I3 **Perform Pipeline Maintenance**

Objectives

To be competent in this area, the individual must be able to:

- Describe pipeline maintenance

LEARNING TASKS

1. Describe assisting with pipeline testing
2. Describe assisting with locating and exposing defective area
3. Describe removing existing coating
4. Describe assisting with pup (sleeve) set up
5. Describe pipe protection

CONTENT

- Pressure testing
- Pigging
- Pigging data
- Locating pipe & unknown hazards
- Preparation for digging
- Digging
 - Hydrovac truck / excavator
 - Expose defective area
 - Access & egress
 - Manual removal
- Dig up procedure
- Shoring / Sloping
 - Unstable fill
- Jeeping
- X-ray
- Scraper
- Grinder
- Buffer
- Sandblasting
- Spark hazard
- Hammer
- Guide equipment operator
- Place the new section (pup / sleeve)
- Blasting
- Re-coating



Section 4

TRAINING PROVIDER STANDARDS



Facility Requirements

Classroom Area

- Comfortable seating and tables suitable for learning
- Compliance with the local and national fire code and occupational safety requirements
- Overhead and multimedia projectors with a projection screen
- Whiteboard with marking pens and erasers
- Lighting controls to allow easy visibility of the projection screen while allowing students to take notes
- Windows must have shades or blinds to adjust sunlight
- Heating / Air conditioning for comfort all year round
- In-room temperature control to ensure comfortable room temperature
- Acoustics in the room must allow audibility of the instructor
- Library complete with reference material for student and instructor use
- Minimum 500 square feet of class space per class of 16 students with a minimum ceiling height of 8 feet

Shop Area

- 2,400 square feet of workshop space per class of 16 students with a minimum ceiling height of 20 feet
 - This includes space for a tool crib
 - Should be protected from the elements
- Adequate lighting and lighting control
- Ventilation as per WorkSafeBC standards
- Refuse and recycling bins for used shop materials
- First-aid facilities

Lab Requirements

- N/A

Student Facilities

- Adequate lunch room as per WorkSafeBC requirements
- Adequate washroom facilities as per WorkSafeBC requirements
- Personal storage lockers

Instructor's Office Space

- Desk and filing space
- Computer

Other

- Outdoor space



Tools and Equipment

Shop Equipment and Tools

Required (Both levels)

- Coveralls (Paper)
- Eye wash station
- Face shield
- Fire extinguisher
- First aid kit
- Fit tester kit
- Flashlight
- Gloves
- Hard hat

Standard Safety Equipment

- Hearing protection
- High visibility vest
- Knee board and pads
- Light
- Respirator (Particles, chemical and vapour)
- Safety goggles / glasses
- Soap
- Spill Kit
- Ladder (Extension, stepladder)

Hand Tools

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Adjustable wrench • Bar (Wrecking, pin, crow, pry) • Broom • Brush • Bucket / Pail • Bull float • Calculator • Carpenter's pencils • Edger (Concrete) • Float (Wood, magnesium, steel, aluminium, rubber) • Hammer (Claw, sledge) • Hand level • Hand saw • Hand trowel | <ul style="list-style-type: none"> • Marker • Measuring tape (Imperial and metric) • Mop • Pliers (Linesmen) • Rake (Concrete, landscaping, fan) • Screwdriver (Flat, phillips, robertson) • Shovel (Square, spade) • Sidewalk groover • Sponge • Square • Straightedge • Stringline • Water hose • Wheelbarrow |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Power Tools

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Angle grinder • Chipping gun and bit • Chipping hammer • Circular saw and blade | <ul style="list-style-type: none"> • Concrete vibrator • Electric drill • Extension cord • Vacuum cleaner (Wet dry) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|

Portable and Stationary Equipment

- | | |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <ul style="list-style-type: none"> • Compactor • Jack hammer | <ul style="list-style-type: none"> • Tool box |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------|

Shop Equipment and Tools

Required (Level-Specific)

Standard Safety Equipment



- Air horn (1)
- Chaps (Chain saw) (1)
- Fall protection equipment (Harness, rope, lanyard, restraining cable, rope grabs, retractable) (1)
- Leather gloves (2)
- Welding jacket (2)

Hand Tools

- Bolt cutter (1)
- Caulking gun (2)
- Chisel (Brick set) (2)
- File (Flat, round, chain saw) (1)
- Handcart (2)
- Level (Laser, builders') (2)
- Pick axe (1)
- Rubber mallet (1)
- Scraper (1)
- Sprayer (1)
- Strikers (2)
- Tag line (1)

Power Tools and Portable Equipment

- Chain saw (1)
- Chipper (1)
- Compressor (1)
- Oxy-acetylene cutting equipment (2)
- Powder-actuated tool (1)
- Quick-cut saw (1)
- Reciprocating saw (1)
- Tamper (Vibratory, plate, roller) (1)
- Wire wheel (Component of grinder) (2)

Rigging and Scaffolding Equipment

- Chain fall (1)
- Chains (1)
- Clevis (1)
- Come-along (Portable winching equipment) (1)
- Gin wheel (1)
- Grip hoist (Trifors) (1)
- Rolling scaffold (1)
- Rope (Nylon, steel, natural fibre, polypropylene) (1)
- Shackle (1)
- Sling (Nylon, steel, chain, natural fibre, polypropylene) (1)
- Stationary scaffolding (Frame and brace) (1)
- Stationary Scaffolding (Tube and clamp) (2)

**Shop Equipment and Tools (Recommended)**

- C-clamp
- Coring machine and bit
- Diamond or abrasive disc
- Fire blanket
- Grease gun
- Grinder (bench)
- Hammer stapler
- Hand-held and stationary radio
- Impact wrench/gun (electric and pneumatic)
- Generator
- Heater (Blast)
- Hydraulic jack
- Pavement breaker (Jackhammer)
- Portable concrete mixer
- Pumps (Electric and gas)
- Tripod and mounting device
- Jig saw
- Rivet buster (pneumatic)
- Socket wrench set
- Spooler (for tie wire)
- Staple gun
- Tarpaulin
- Tool belt
- Wire brush

Student Tools and Equipment***Required***

- Safety glasses / goggles
- Hearing protection
- Hard hat
- CSA approved Class 1 work boots

Recommended

- Work gloves

NOTE:

This list of tools and equipment is for training providers. Apprentices should contact their preferred training provider for a list of recommended or required equipment and tools for this program.



Reference Materials

Required Reference Materials

- N/A

Recommended Resources

Level 1:

- **Construction Craft Worker Apprenticeship Program: Year 1: BC Trade Modules**
(www.crownpub.bc.ca)

A USE SAFE WORK PRACTICES

- BC Industry Training and Apprentice Commission; *Use Safe Work Practices*, ISBN 0-7719-1466-0.
- *BC Worker's Compensation Act*, available at www.crownpub.bc.ca/.
- *Fundamentals of Industrial Hygiene*, ISBN 0-87912-082-7.
- *Handi-Guide to British Columbia's OHS Regulation*, ISBN 978-0-7798-5543-8.
- Worksafe BC, *Back Talk: An Owner's Manual for Backs*, ISBN 1207-1501.

B ORGANIZE WORK

- Alberta Labourer's Training Trust Fund, *Red Seal Study Guide*.*
- *Basic Blueprint Reading and Sketching*, ISBN 1-4018-4878-8.
- *Building Trades Blueprint Reading Residential*, ISBN 0-7730-29001.
- Proctor, Thomas E., *Building Trades Printreading Part 1*, ISBN 0-8269-0407-6.
- Proctor, Thomas E., *Building Trades Printreading Part 2*, ISBN 0-8269-0423-8.
- Toenjes, Leonard P., *Building Trades Printreading Part 3*, ISBN 0-829-0455-6.

C USE TOOLS AND EQUIPMENT

- Alberta Labourer's Training Trust Fund, *Red Seal Study Guide*.*
- Alberta Laborers' Training Trust Fund, *Construction Craft Labourer Small Tools*.*
- NCCER, *Rigging Trainee Guide*, ISBN 0-13-227296-2.

D PERFORM ROUTINE TRADE ACTIVITIES

- Alberta Laborers' Training Trust Fund, *Construction Craft Labourer Construction Basics*.*
- BCCSA, *Traffic Control Person Participant's Manual*, available from <https://www.bccsa.ca/>.
- Ministry of Transportation and Highways, *Traffic Control Manual for Work on Roadways*, ISBN 0-77264095-5.

E PERFORM SITE WORK

- Alberta Labourer's Training Trust Fund, *Red Seal Study Guide*.*
- ITA, *Oxyacetylene Cut and Weld*, ISBN 0-7719-1475-X, available at www.crownpub.bc.ca/.

F USE SCAFFOLDING AND ACCESS EQUIPMENT

- Alberta Laborers' Training Trust Fund, *Construction Craft Labourer Scaffolding*.*
- Construction Safety Association of Ontario, *Scaffolds*, ISBN 0-919465-38-2.
- ITA, *Erect Ladders and Scaffolds*, ISBN 0-7719-1474-1 available at www.crownpub.bc.ca/.

G PERFORM CONCRETE WORK

- American Concrete Institute, *ACI Manual of Concrete Practice*, available at <https://www.concrete.org/>.



- American Technical Publishers, *Concrete Principles*, available at <http://www.atplearning.com/Default.aspx>.
- American Technical Publishers, *Concrete Formwork*, <http://www.atplearning.com/Default.aspx>.
- Fahl, Thomas P., *Concrete Principles*, ISBN 0-8269-0500-5.
- Koel, Leonard, *Concrete Formwork*, ISBN 0-8269-0706-7.
- Portland Cement Association, *Cement Mason's Guide to Building Concrete Walks, Drives, Patios and Steps*, ISBN 10: 0893120928/ ISBN 13: 9780893120924.
- Portland Cement Association, *Design and Control of Concrete Mixtures*, ISBN 10: [0893120871](http://www.pca.org)/ISBN 13: [9780893120870](http://www.pca.org).

H PERFORM MASONRY WORK

- Mason Contractor's Association of America (MCAA), (Numerous Publications) at <http://www.masoncontractors.org/>.
- National Concrete Masonry Association (NCMA), (Numerous Publications) <https://ncma.org/>.

I PERFORM UTILITIES AND PIPELINE TASKS

- Alberta Labourer's Training Trust Fund, *Red Seal Study Guide*.*
- NCCER, *Pipelayer Trainee Guide*, ISBN 0-13-014258-1.
- NCCER, *Pipelayer Trainee Guide*; ISBN 0-13-014258-1.

J PERFORM ROADWORK

- Alberta Labourer's Training Trust Fund, *Red Seal Study Guide*.*
- Asphalt Institute, *The Asphalt Handbook*; ISBN 13:978-1-934154-27-4.
- NCCER, *Excavations TG, 2nd Edition*, ISBN-10: 0-13-613603-6/ ISBN-13: 978-0-13-613603-3. .

Resources referenced to the Alberta Laborers' Training Trust Fund are available for purchase by calling (780) 423-7722:

NOTE:

This list of recommended resources is for training providers. Apprentices should contact their preferred training provider for a list of recommended or required texts for this program.



Instructor Requirements

Occupation Qualification

The instructor must possess either:

- Construction Craft Worker (Labourer) ITA Certificate of Qualification with an Interprovincial Red Seal Endorsement
OR
- Construction Craft Worker Certificate of Qualification from another Canadian jurisdiction with an Interprovincial Red Seal Endorsement
OR
- Certificate of Qualification with an Interprovincial Red Seal Endorsement in a related trade (Carpenter, Bricklayer, or Cement Mason). This would necessitate a team teaching environment, wherein other tradespeople are brought in as guest instructors to teach the program components that the main instructor doesn't specialize in.

Work Experience

A minimum of 5 years' experience working in the industry as a journey person.

Instructional Experience and Education

It is preferred that the instructor also possesses, or be working toward, one of the following:

- BC Provincial Instructor Diploma (or working towards)
- Bachelors degree in education
- Masters degree in education
- Or equivalent



Appendices



Appendix A Assessment Guidelines

Program: **Construction Craft Worker (Labourer)**

Training providers delivering Construction Craft Worker (Labourer) apprenticeship in-school technical training are required to enter the following information in ITA Direct Access (ITADA) for each apprentice:

- An in-school mark in the form of a percentage

Training Provider Component: **In-School Technical Training**

The in-school mark for each level is derived from a combination of theory and practical assessments. This mark is then combined with the ITA Standard Level Examination to determine a final mark for the level.

Calculation tables showing the subject competencies, level percentage weightings and level examination weightings are shown in the Grading Sheet: "Subject Competencies and Weightings" section of this document.

Construction Craft Worker (Labourer) Level 1 in-school marks are calculated by:

- Totalling the level *theory* competency results as noted in the competencies and weightings tables and multiplying the total by 60% for Level 1 to produce a weighted theory result;
- Totalling the level *practical* competency results as noted in the competencies and weightings tables and multiplying the total by 40% for Level 1 to produce a weighted practical result;
- Adding the theory and practical competency results together to determine the final in-school result.

Successful completion of the in-school training for each level is defined as an in-school mark of 70% or greater.

ITA Component: **ITA Standardized Level Examinations - Level 1**

ITA Direct Access (ITADA) automatically calculates the final mark for a level once the in-school training and standard level exam marks are entered into the system. This mark is calculated by blending the standardized exam percentage score and the in-school technical training percentage score to determine the final mark for the level.

In-school technical training (combined theory & practical) is weighted at 80% and the ITA standardized level exam is weighted at 20%. These two scores are combined to determine the final level mark. This result is the final mark that is recorded in ITA Direct Access.

- A mark of 70% or greater is required to pass the level when combining the final in-school percentage score and the final ITA standardized level exam percentage score.



Interprovincial Red Seal Exam

In order to achieve certification, Construction Craft Worker (Labourer) apprentices are required to write the Construction Craft Worker Interprovincial Red Seal exam after completing all levels of in-school technical training. Apprentices must have passed all levels of in-school technical training or be approved challengers to sit the exam. A score of 70% or greater is required for a pass.

Interprovincial Red Seal exams should be requested by training providers via the usual ITA procedure.

The ITA will administer and invigilate Interprovincial Red Seal exams and score and record exam results in ITA Direct Access.



Grading Sheet: Subject Competency and Weightings

PROGRAM: IN-SCHOOL TRAINING: ITA DIRECT ACCESS CODE:		CONSTRUCTION CRAFT WORKER (LABOURER) LEVEL 1 0343CCBL01	
LINE	SUBJECT COMPETENCIES	THEORY WEIGHTING	PRACTICAL WEIGHTING
A	USE SAFE WORK PRACTICES	13%	5%
B	ORGANIZE WORK	6%	11%
C	USE TOOLS AND EQUIPMENT	11%	8%
D	PERFORM ROUTINE TRADE ACTIVITIES	12%	5%
E	PERFORM SITE WORK	23%	10%
F	USE SCAFFOLDING AND ACCESS EQUIPMENT	6%	17%
G	PERFORM CONCRETE WORK	11%	30%
I	PERFORM UTILITIES AND PIPELINE TASKS	8%	14%
J	PERFORM ROADWORK	10%	0%
	Total	100%	100%
Calculated by the Training Provider (Construction Craft Worker (Labourer) in-school theory & practical subject competency weighting)		60%	40%
Training Provider enters final in-school mark into ITA Direct Access		IN-SCHOOL %	

<p>Calculated by ITA: In-school Mark ITA Direct Access calculates the percentage weighting once the in-school mark is entered. Combined theory and practical subject competency multiplied by</p>	80%
<p>Calculated by ITA: Standard Level Exam Mark ITA Direct Access will calculate the percentage weighting once the standard level exam marks have been entered. The exam score is multiplied by</p>	20%
<p>Calculated by ITA: Final Mark The final mark for determining credit is calculated by ITA Direct Access.</p>	FINAL%



PROGRAM: IN-SCHOOL TRAINING: ITA DIRECT ACCESS CODE:		CONSTRUCTION CRAFT WORKER (LABOURER) LEVEL 2 0343CC02	
LINE	SUBJECT COMPETENCIES	THEORY WEIGHTING	PRACTICAL WEIGHTING
A	USE SAFE WORK PRACTICES	8%	0%
B	ORGANIZE WORK	10%	16%
D	PERFORM ROUTINE TRADE ACTIVITIES	8%	13%
E	PERFORM SITE WORK	18%	20%
F	USE SCAFFOLDING AND ACCESS EQUIPMENT	8%	20%
G	PERFORM CONCRETE WORK	13%	31%
H	PERFORM MASONRY WORK	16%	0%
I	PERFORM UTILITIES AND PIPELINE TASKS	19%	0%
	Total	100%	100%
Calculated by the Training Provider (CCW in-school theory & practical subject competency weighting)		60%	40%
Training Provider enters final in-school mark into ITA Direct Access Final in-school percentage score Apprentices must achieve a minimum 70% as the final in-school percentage score to be eligible to write the Interprovincial Red Seal exam.		IN-SCHOOL %	

All apprentices who complete Level 2 of the Construction Craft Worker (Labourer) (CCW) program with a FINAL level percentage score of 70% or greater will write the Interprovincial Red Seal examination as their final assessment.

ITA will enter the apprentices' CCW Interprovincial Red Seal examination percentage score in ITA Direct Access.

A minimum percentage score of 70% on the examination is required for a pass.



Appendix B Glossary

Describe; to explain or give an account of an item or concept. This means an introduction to a topic area that will include terminology, safety as it pertains to the topic, types and uses of the item. For example, describing roofs will include terminology such as rise and run, slope, rafter, fascia; discussion regarding working at heights; types of roofs such as gable and hip.

Plan; an intention or decision about what one is going to do; to decide on and arrange in advance. Planning includes all aspects of reading and interpreting construction drawings and documentation; Any reference to WorkSafeBC, building codes and bylaws; consultation with architects, engineers, sub trades, owners occurs as part of planning. There is overlap between planning and calculating, primarily in terms of estimating time and materials.

Calculate; determine the amount or number of something mathematically.

Calculating includes all aspects of estimating labour and materials (some overlap with Plan), calculation of volumes, centreline perimeter, theory lengths of rafters, rise and run of stairs, etc.

Build; to make something by putting together parts or materials; construct; erect. This includes layout and assembly techniques; cutting, fitting, fastening, and joinery.

Interpret; to explain or understand the meaning of something. This primarily means using construction drawings. Given the alphabet of lines and numerous symbols and formats, construction drawings are a language of their own. The Construction Craft Worker (Labourer) must interpret two dimensional drawings to build three dimensional objects.

Use; the act of using something. This typically involves the safe and proper operation of a tool.

Consult; to ask for the professional opinion of someone or to talk with someone, or look up information in a document, in order to make a decision.

Maintain; to keep a tool in good condition by performing regular maintenance such as lubrication or cleaning, as well as making repairs and correcting problems.

Adjust; to change something in a minor way so that it works better, such as changing the mitre angle on a compound mitre saw.

Install; to make ready to be used in a certain place, such as installing door or window hardware.

Prepare; to work out the details of or plan in advance; to make something ready for some activity or purpose, such as preparing the site for construction activities.

Construction Drawings and Specifications; blueprints, plans, instructions, information

Correct; having no errors or mistakes. Calculations should be done correctly.

Proper; in a thorough manner; suitable for some purpose or situation. Tools are used properly.



Appendix C Previous Contributors

The Program Outline was prepared with the advice and direction of an industry steering committee convened initially by the Construction Industry Training Organization (CITO). Members include:

- Jeff Anders - LIUNA
- Chris Backman – Kingston Construction
- Randy Callaghan – PCL Construction
- Dean Homewood – Construction and Specialized Workers Union Local 1611
- Kevin Ronning – Southwest Contracting

Industry Subject Matter Experts retained to assist in the development of Program Outline content:

- Chris Backman – Kingston Construction
- Randy Callaghan – PCL Construction
- Dean Homewood – Construction and Specialized Workers Union Local 1611
- Jeff Anders - LIUNA

Facilitators:

- Laura Chaston - CITO
- Dave Coleman - CITO

The Industry Training Authority would like to acknowledge the dedication and hard work of all the industry representatives appointed to identify the training requirements of the Construction Craft Worker (Labourer) occupation.



Appendix D Curriculum Tool List

Hand Tools

- Adjustable wrench
- Asphalt spreader
- Axe
- Bar (Wrecking, pin, crow, pry)
- Bolt cutter
- Broom
- Brush
- Bucket / pail
- Bull float
- Cable cutter
- Caulking gun
- C-Clamp
- Chisel
- Edger
- File (Flat, round)
- Float (Wood, magnesium, steel, aluminium, rubber)
- Grease gun
- Hammer stapler
- Hammer (Ball peen, claw, sledge, dead blow, axe, brass)
- Hand level
- Hand saw
- Hand trowel
- Lining (Line-Up) bar
- Magnet
- Mop
- Pick axe
- Pliers (Needle nose, slip joint, linesmen)
- Punch (Knock-out type, various sizes)
- Rake (Concrete, asphalt, landscaping, fan)
- Rubber mallet
- Scraper
- Screwdriver (Flat, phillips, robertson)
- Shovel (Square, truncheon, spade, scoop, snow)
- Sidewalk groover
- Snip (Heavy duty wire cutting)
- Socket wrench set
- Sponge
- Spooler (for tie wire)
- Sprayer
- Squeegee
- Staple gun
- Tarpaulin
- Tool belt
- Trowel
- Twister
- Water drum
- Water hose
- Watering can
- Wire brush

NOTE:

This list of tools is for instructors to use as instructional content. **It is not a list of recommended or required equipment and tools.**



Power Tools

- Angle grinder
- Blow torch
- Chain saw
- Chipping gun and bit
- Chipping hammer
- Circular saw and blade
- Concrete vibrator
- Coring machine and bit
- Diamond or abrasive disc
- Disc sander
- Electric drill
- Extension cord
- Flashlight
- Grinder
- Hand-held and stationary radio
- Hydraulic jack
- Impact wrench / gun (Electric and pneumatic)
- Jig saw
- Light
- Mechanical spreader
- Media blaster
- Oxy-acetylene cutting torch
- Portable concrete mixer
- Portable sprayer
- Powder-actuated tools
- Power sprayer
- Pressure pump
- Pressure washer
- Pumps
- Quick-cut saw
- Reciprocating saw
- Steam cleaner
- Tamper (Vibratory, plate, roller)
- Vacuum cleaner (Wet dry)
- Weed trimmer
- Wire wheel (Component of grinder)

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**Stationary Equipment**

- Cut-off saw
- Compressor
- Generator
- Heater
- Mixer
- Table saw
- Tool box
- Water pump

Pneumatic Tools and Equipment

- Chipper
- Compactor
- Drill (Stopper, jack-leg, ratchet)
- Grinder
- Hammer
- Jack hammer
- Media-blasting tool
- Pavement breaker (Jack hammer)
- Pneumatic gun (Needle, impact, air, paint)
- Portable compressor pump
- Rivet buster
- Wand

Rigging and Hoisting Equipment

- Block and tackle
- Bridle hitch
- Chain fall
- Chains
- Clevis
- Come-along (Portable winching equipment)
- Gin wheel
- Grip hoist (Tirfors)
- Lifting clamp
- Lifting hook
- Pilley
- Roller
- Rope (Nylon, steel, natural fibre, polypropylene)
- Shackle
- Sling (Nylon, steel, chain, natural fibre, polypropylene)
- Snatch block
- Softener
- Spreader bar
- Tag line
- Winch
- Work cage

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**Scaffolding and Access Equipment**

- Cherry picker
- Ladder (Extension, platform, stepladder)
- Man lift
- Mobile scaffolding
- Powered elevated platform
- Scissor Lift
- Stationary scaffolding
- Suspended platform
- Suspended scaffold
- Swing stage
- Rolling scaffold

Transport Equipment

- ATV
- Boat
- Conveyor
- Forklift
- Handcart
- Manual buggy
- Power buggy
- Skid steer
- Truck
- Wheelbarrow

Measuring and Layout Tools and Equipment

- Calculator
- Carpenter's pencil
- Chalk line
- Dew point gun
- Laptop
- Level (Laser, builder's, precision)
- Marker
- Measuring tape
- Pipe locator
- Plumb bob
- Scale rule
- Square
- Straightedge
- Stringline
- Template
- Theodolite
- Thermometer
- Tire pressure gauge
- Total station
- Trammel point
- Transit
- Tripod and mounting device

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Masonry Tools

- Bloster
- Brick and stone cutter
- Brick tongs
- Corner block
- Curry comb
- Face hammer
- Hawk
- Jointer (Rat tail)
- Knife
- Line block
- Line holder
- Line pin
- Line trig
- Manual splitter
- Masonry saw
- Masonry table saw
- Mason's chisel
- Mason's trowel
- Mortar board
- Mortar box
- Mortar buggy
- Mortar hoe
- Mortar mixer
- Notched trowel
- Raker-wheel type
- Sandbox
- Sandscreen

Personal Protective Equipment and Safety Equipment

- Air horn
- Apron

- Barrier cream, sunscreen, insect repellent
- Boots (Safety, rubber, insulated, waders)
- Breathing apparatus
- Chaps (Chain saw, other)
- Chin strap
- Coveralls (Cloth, paper, chemical)
- Evacuation box
- Eye wash station
- Face shield
- Fall protection equipment (Harness, lanyard, restraining cable, roper grabs, retractable lanyard)
- Fire blanket
- Fire extinguisher
- Fire hose
- Fire retardant clothing
- First aid kit
- Fit tester kit
- Gas detection equipment
- Gloves
- Hard hat
- Hazmat protective suit
- Hearing protection
- High visibility vest
- Knee board and pads
- Life jacket
- Megaphone
- Rain suit
- Respirator (Particles, chemical and vapour)
- Safety goggles / glasses
- Self contained breathing apparatus
- Soap
- Spill kit
- Welding flash blind

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