PROGRAM OUTLINE
Construction Craft Worker (Labourer)
The latest version of this document is available in PDF format on the ITA website
www.itabc.ca

To order printed copies of Program Outlines or learning resources (where available) for BC trades contact:

Crown Publications, Queen’s Printer
Web: www.crownpub.bc.ca
Email: crownpub@gov.bc.ca
Toll Free 1 800 663-6105

Copyright © 2015 Industry Training Authority
This publication may not be modified in any way without permission of the Industry Training Authority
CONSTRUCTION CRAFT WORKER (LABOURER)  
PROGRAM OUTLINE

APPROVED BY INDUSTRY  
SEPT 2015

BASED ON  
NOA 2015

Developed by  
Industry Training Authority  
Province of British Columbia
TABLE OF CONTENTS

Section 1 INTRODUCTION.................................................................................................................. 4
  Foreword ........................................................................................................................................ 5
  Acknowledgements ...................................................................................................................... 6
  How to Use this Document.......................................................................................................... 7

Section 2 PROGRAM OVERVIEW.................................................................................................. 9
  Program Credentialing Model ..................................................................................................... 10
  Occupational Analysis Chart ..................................................................................................... 12
  Training Topics and Suggested Time Allocation ...................................................................... 15

Section 3 PROGRAM CONTENT .................................................................................................. 18
  Level 1 Construction Craft Worker (Labourer) ....................................................................... 19
  Level 2 Construction Craft Worker (Labourer) ...................................................................... 81

Section 4 TRAINING PROVIDER STANDARDS ......................................................................... 105
  Facility Requirements .............................................................................................................. 106
  Tools and Equipment ................................................................................................................. 107
  Reference Materials .................................................................................................................. 110
  Instructor Requirements .......................................................................................................... 112

Appendices ..................................................................................................................................... 113
  Appendix A Assessment Guidelines ......................................................................................... 114
  Appendix B Glossary .................................................................................................................. 118
  Appendix C Previous Contributors .......................................................................................... 119
  Appendix D Curriculum Tool List ............................................................................................. 120
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 measurable and that they reflect the skills spelled out in the competency as those required of a competent journeyperson. 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
- Barry Kirton
  Construction and Specialized Workers Union, Local 1611

The Program Outline was reviewed and revised by Industry and Instructor Subject Matter Experts:

- Bob Aeichele
  Construction and Specialized Workers Union, Local 1611
- Miles Cameron
  Construction and Specialized Workers Union, Local 1611
- 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.

<table>
<thead>
<tr>
<th>Section</th>
<th>Training Providers</th>
<th>Employers/ Sponsors</th>
<th>Apprentices</th>
<th>Challengers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Credentialing Model</strong></td>
<td>Communicate program length and structure, and all pathways to completion</td>
<td>Understand the length and structure of the program</td>
<td>Understand the length and structure of the program, and pathway to completion</td>
<td>Understand challenger pathway to Certificate of Qualification</td>
</tr>
<tr>
<td><strong>OAC</strong></td>
<td>Communicate the competencies that industry has defined as representing the scope of the occupation</td>
<td>Understand the competencies that an apprentice is expected to demonstrate in order to achieve certification</td>
<td>View the competencies they will achieve as a result of program completion</td>
<td>Understand the competencies they must demonstrate in order to challenge the program</td>
</tr>
<tr>
<td><strong>Training Topics and Suggested Time Allocation</strong></td>
<td>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</td>
<td>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</td>
<td>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</td>
<td>Understand the relative weightings of various competencies of the occupation on which assessment is based</td>
</tr>
<tr>
<td><strong>Program Content</strong></td>
<td>Defines the objectives, learning tasks, high level content that must be covered for each competency, as well as defining observable, measurable achievement criteria for objectives with a practical component</td>
<td>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</td>
<td>Provides detailed information on program content and performance expectations for demonstrating competency</td>
<td>Allows individual to check program content areas against their own knowledge and performance expectations against their own skill levels</td>
</tr>
<tr>
<td>Section</td>
<td>Training Providers</td>
<td>Employers/ Sponsors</td>
<td>Apprentices</td>
<td>Challengers</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Training Provider Standards</td>
<td>Defines the facility requirements, tools and equipment, reference materials (if any) and instructor requirements for the program</td>
<td>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</td>
<td>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</td>
<td>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</td>
</tr>
<tr>
<td>Appendix A: Assessment Guidelines</td>
<td>Provides information on how in-class marks are weighted and blended.</td>
<td>Provides information on how in-class marks are weighted and blended.</td>
<td>Provides information on how in-class marks are weighted and blended.</td>
<td></td>
</tr>
<tr>
<td>Appendix B: Glossary</td>
<td>Defines program specific terms and abbreviations</td>
<td>Defines program specific terms and abbreviations</td>
<td>Defines program specific terms and abbreviations</td>
<td>Defines program specific terms and abbreviations</td>
</tr>
</tbody>
</table>
Section 2

PROGRAM OVERVIEW

Construction Craft Worker (Labourer)
Program Overview

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

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.

Completion Requirements
Interprovincial Red Seal Exam

Prerequisites
Approved challenge application, including:
Trade-Related Work Experience: 6,000 hours

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.

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

**PERFORM UTILITIES AND PIPELINE TASKS**

- Install Utility Piping (I1)
- Perform Pipeline Activities (I2)
- Perform Pipeline Maintenance (I3)

**PERFORM ROADWORK**

- Install Paving Materials (J1)
- Install Roadwork Components (J2)
## Training Topics and Suggested Time Allocation

**CONSTRUCTION CRAFT WORKER (LABOURER) – LEVEL 1**

### % of Time Allocated to:

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

<table>
<thead>
<tr>
<th>Line F</th>
<th>USE SCAFFOLDING AND ACCESS EQUIPMENT</th>
<th>10%</th>
<th>40%</th>
<th>60%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Use Scaffolding</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>Use Access Equipment</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line G</th>
<th>PERFORM CONCRETE WORK</th>
<th>18%</th>
<th>40%</th>
<th>60%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Form Concrete</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>Place and Finish Concrete</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line I</th>
<th>PERFORM UTILITIES AND PIPELINE TASKS</th>
<th>10%</th>
<th>50%</th>
<th>50%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1</td>
<td>Install Utility Piping</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line J</th>
<th>PERFORM ROADWORK</th>
<th>6%</th>
<th>100%</th>
<th>0%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1</td>
<td>Install Paving Materials</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J2</td>
<td>Install Roadwork Components</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total Percentage for Construction Craft Worker (Labourer) Level 1 | 100% |
## Program Overview

### Training Topics and Suggested Time Allocation

**CONSTRUCTION CRAFT WORKER (LABOURER) – LEVEL 2**

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

**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

PROGRAM CONTENT

1. Construction Craft Worker (Labourer)
2. Industry Training Authority

2. Describe confined spaces

- 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
LEARNING TASKS

5. Describe worksite safety policies
   CONTENT
   • Site orientations
     o Hazard assessment
     o Conditions
     o Meeting requirements
     o Reporting hazards and incidents
     o Investigations
     o Committees
     o Employee orientation
     o First aid
     o Hearing
     o Records and statistics
     o Non-compliance procedures
   • First aid facilities
   • Record keeping
   • Reporting to first aid attendant
   • Control zone identification
   • Minimum standards
   • Acts and Regulations

6. Describe emergency procedures
   CONTENT
   • Emergency shutoffs
   • Fire control systems
   • Eye wash facilities
   • Emergency exits
   • Emergency contact / phone numbers
   • Marshalling / mustering areas
   • Emergency horn protocol
   • Emergency rescue procedures

7. Describe the control of workplace hazards
   CONTENT
   • Safety inspection
   • Equipment inspection
   • Engineering controls
   • Administrative controls
   • Lockout / tag-out
   • OHS programs
     o Regulatory
     o Contractor specific

8. Describe the removal of hazardous materials
   CONTENT
   • Types of hazardous materials
   • Types of Personal Protective Equipment (PPE) required
   • WHMIS

9. Describe effective communication
   CONTENT
   • Ability to follow / give instructions
   • Ability to clarify instructions
   • Hand signals
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

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

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
- 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
   - 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

2. Describe fall protection systems
   - Railings / scaffolds
   - Barricades and control zones
   - Safety monitor
   - Nets
   - Hardware
   - Anchor points
   - Assembly
   - Ladder systems
   - Vertical and horizontal systems
Program Content  
Level 1

3. Describe the development of a fall protection plan
   - Identify work area and hazards
   - List and choose equipment
   - Rescue procedures
   - Hierarchy of fall protection procedures
   - Requirements for a written plan

4. Inspect, assemble and disassemble fall protection equipment and systems
   - OHS Regulations, Part 11
   - Assembly / disassembly
   - Routine / scheduled inspection and maintenance
     - Required reference material

5. Use a harness as per industry standards
   - Inspection
   - Use
   - Specifications
     - 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%.
Line (GAC): A USE SAFE WORK PRACTICES
Competency: A4 Use Personal Protective Equipment

Objectives
To be competent in this area, the individual must be able to:
- Describe personal protective equipment (PPE)
- Demonstrate the use of PPE

LEARNING TASKS
1. Describe PPE

CONTENT
- Types
  - Safety boots
  - Harnesses
  - Hearing protection
  - Respirators
  - Eye protection
  - Face shields
  - Hand protection

2. Demonstrate the use of PPE

CONTENT
- Application
- Inspection
- Storage
- Disposal

Achievement Criteria
Performance The learner will:
- Select the correct PPE for the task
- Use PPE

Conditions The learner will be given:
- PPE

Criteria The learner will be evaluated throughout the course when performing practical tasks/exercises on their ability to use PPE. PPE use must be performed within specifications acceptable to industry.
Program Content
Level 1

Line (GAC): A USE SAFE WORK PRACTICES
Competency: A5 Use Fire Safety Procedures

Objectives
To be competent in this area, the individual must be able to:
- Describe preventative fire safety precautions
- Describe considerations and steps to be taken prior to fighting a fire
- Describe the use of fire extinguishers

LEARNING TASKS

1. Describe preventative fire safety precautions
   - Classified combustibles
   - Flammables
   - Explosive materials
   - Classes A-D
   - Symbols and colours
   - National Fire Protection Association (NFPA)
   - Safe handling and storage of fuels
     - Diesel
     - Gasoline
     - Compressed gases
     - Chemicals
   - Lubricants
   - Contaminated rags
   - Combustible explosive dusts
   - Aerosols
   - WHMIS Classifications
   - Labelling
   - PPE
   - Exit route identification
   - EMS notification procedures
     - Alarm
     - Evacuation
     - Muster area
   - Ignition source identification
   - Type of fire
     - Wood / paper
     - Electrical
     - Flammable liquids

2. Describe the considerations and steps to be taken prior to fighting a fire
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

   - Governmental and site-specific rules and regulations
   - Types and characteristics of gases
     - Hydrogen sulphide (H$_2$S)
     - Carbon monoxide (CO)
     - Methane (CH$_4$)
   - 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

2. Describe performing spark watch

   - 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

3. **Describe performing bottle watch**

   - Governmental and site-specific rules and regulations
   - Area where work is being performed
   - Work being performed
     - Media blasting
   - Types of compressed gases that need to be monitored
     - Breathable air
     - Propane
   - Meaning of gauge readings
     - When to change bottles
     - When alternate sources need to be activated
   - Inform confined space attendee of change or changing conditions
   - Define a confined space according to:
     - Government regulations
     - Site-specific regulations
   - Training and certification required
   - Types and characteristics of gases
     - Hydrogen sulphide ($H_2S$)
     - Carbon monoxide (CO)
     - Methane ($CH_4$)
   - Characteristics of the area to be monitored
   - Work being performed
   - Types of monitoring equipment
   - Permissible exposure levels
   - Time weighted averages
   - Emergency rescue and evacuation plans
   - Rescue and evacuation equipment
     - Tripods
     - Harnesses
     - Anklets
     - Lifelines
   - Communication methods
     - Hand signals
     - Rope signals
     - Using radios
   - Confined space entry equipment
   - Select and use monitoring equipment
   - Interpret readings and alarms on monitoring equipment
   - Zero monitoring equipment
   - Alert others of changes in working conditions
     - Atmospheric changes
     - Environmental changes
     - Hazardous activities around work area

4. **Describe performing confined space watch**
LEARNING TASKS

5. Describe monitoring heaters

   • Recording readings
   • Assessing and responding to conditions
     o Calling emergency and rescue services
   • Propane certification
   • Types of heaters
     o Propane
     o Electric
     o Radiant
   • Governmental regulations and jobsite specific rules
   • Gauge readings
   • Keeping heaters operating
   • Inspection of heaters and their surroundings
   • Recognize hazards
     o Melting tarpaulins
     o Fires
     o Leaks

6. Describe man (worker) watch

   • Site specific considerations
     o Location
     o Hazards
     o Isolation
     o 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

   CONTENT
   - Views
     - Plan
     - Section
     - Elevation

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

   CONTENT
   - Lines
   - Symbols
   - Abbreviations

3. Describe the parts of the drawings

   CONTENT
   - Title block
   - Insets
   - Legends
   - Orientation

4. Interpret documents, drawings and specifications

   CONTENT
   - 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%.
Program Content
Level 1

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
  o Verbal
  o Written
  o Hand signals
• Roles
  o Customers
  o Supervisors
  o Co-workers
  o Safety reps
  o Operations staff
  o Other tradespersons
  o Apprentices
• Public relations
• Equipment
  o Radios
  o Cell phones
  o Plant phones
  o Air horns
  o Whistles
• Documenting jobsite issues
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
   - Add, subtract
   - Simplify fractions
2. Use decimal fractions to solve problems
   - Add, subtract, multiply, divide
   - Convert between decimals and fractions
   - Decimal notation
3. Solve problems of ratio and proportion
   - Ratio
   - Proportion
   - Unknown quantities
4. Convert between metric and imperial measurements
   - Metric and imperial conversion
   - Use of conversion table
5. Solve problems using formulas
   - 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
Program Content
Level 1

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
   • 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

2. Use power tools
   • 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
<table>
<thead>
<tr>
<th>LEARNING TASKS</th>
<th>CONTENT</th>
</tr>
</thead>
</table>
| 1. Describe rigging and hoisting equipment | • Types of rigging equipment  
  ○ Shackles  
  ○ Turnbuckles  
  ○ Slings  
  • Types of hoisting equipment  
  ○ Come-alongs  
  ○ Chainfalls  
  ○ Grip hoists  
  • Limitations  
  • Regulations  
  • Training and certification requirements  
  • Types of loads  
  ○ Liquid  
  ○ Reinforcing steel  
  ○ Tilt-up panels  
  • Load radius and center of gravity  
  • Rated capacity of hardware  
  • Safety considerations  
  • Equipment selection  
  • Equipment use  
  • Rating for manual lifts  
  • Rig loads using components  
  ○ Shackles  
  ○ Softeners  
  ○ Slings  
  ○ Hooks  
  ○ Tag lines  
  ○ Spreader beam  
  • Inspection  
  • Maintenance  
  • Storage  
  • Hand signals / radio use |

2. Describe the use of rigging and hoisting equipment
Line (GAC):   C  USE TOOLS AND EQUIPMENT
Competency:  C5  Use Portable Equipment

Objectives
To be competent in this area, the individual must be able to:
• Describe the use of portable equipment

LEARNING TASKS
1. Describe portable equipment

CONTENT
• See tools list in Appendix
• Types
  o Water pumps
    – Electric
    – Hydraulic
    – Fuel-powered
  o Concrete pumps
    – Electric
    – Hydraulic
    – Fuel-powered
  o Heaters
    – Electric
    – Fuel-fired
    – Steam
  o Generators
  o Compressors
  o Light plants
    – Quartz lighting
    – Tower lights

2. Describe the use of portable equipment

CONTENT
• Safety considerations
  o Recognize hazards
  o Follow manufacturers’ specifications
• Operation
• Selecting the right equipment for the task
• Equipment placement
• Set-up and organization
• Inspection
• Monitoring and lubrication
• Maintenance of fluids
• Start engines
  o Diesel
  o Gasoline
• Clean up and storage
Program Content
Level 1

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

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

- Use packers

LEARNING TASKS

1. Describe types of packers
   - Double drum roller (Bomag)
   - 1000 pounder (Whacker)
   - Plate tamper
   - Jumping jack
   - Pogo

2. Describe the safety considerations for the use of packers
   - 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

3. Use packers
   - 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: D1 Install Permanent and Temporary Fencing

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

- Install permanent and temporary fencing

LEARNING TASKS

1. Describe the installation of permanent and temporary fencing
   - Types
     - Snow
     - Chain link
     - Silt
     - Modular
   - Applications
     - Limiting access
     - Environmental protection
     - Security purposes

2. Install permanent and temporary fencing
   - PPE
   - Selection and location
   - Tool selection
   - Installation of posts
     - Wood
     - Metal
   - Structures to secure fencing

Achievement Criteria

Performance The learner will install permanent and / or temporary fencing.

Conditions The learner will be given:
- PPE
- Tools and materials
- Task specifications
- Regulations

Criteria The learner will be evaluated on:
- Safety
- Adherence to task specifications
- Tool usage
- Material handling

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

   - Materials
     - Insulated tarpaulins
     - Polyethylene
     - Plywood
   - Applications
     - Temperature control
     - Enclosing scaffolding
     - Concrete formwork
     - Environmental protection
     - Privacy
     - Protection of public

2. Describe the erection and dismantling of hoarding / enclosures

   - 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

<table>
<thead>
<tr>
<th>LEARNING TASKS</th>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe traffic control</td>
<td>• Safety</td>
</tr>
<tr>
<td></td>
<td>○ PPE</td>
</tr>
<tr>
<td></td>
<td>○ Hazards</td>
</tr>
<tr>
<td></td>
<td>• Training and certification requirements</td>
</tr>
<tr>
<td></td>
<td>• Regulations</td>
</tr>
<tr>
<td></td>
<td>• Duties of flagperson</td>
</tr>
<tr>
<td></td>
<td>• Worksites</td>
</tr>
<tr>
<td></td>
<td>○ Roadwork</td>
</tr>
<tr>
<td></td>
<td>○ Utility installation</td>
</tr>
<tr>
<td></td>
<td>○ Concrete placement</td>
</tr>
<tr>
<td></td>
<td>○ Occupied buildings</td>
</tr>
<tr>
<td></td>
<td>• Types of travel restrictive systems</td>
</tr>
<tr>
<td></td>
<td>○ Barricades</td>
</tr>
<tr>
<td></td>
<td>○ Flagging</td>
</tr>
<tr>
<td></td>
<td>○ Barriers</td>
</tr>
<tr>
<td></td>
<td>○ Guardrails</td>
</tr>
<tr>
<td></td>
<td>○ Covered walkways</td>
</tr>
<tr>
<td></td>
<td>○ Detours for vehicles and pedestrians</td>
</tr>
<tr>
<td></td>
<td>○ Temporary signs, signals and pylons</td>
</tr>
</tbody>
</table>
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
  o Site layout
  o Excavation and grading
  o Roadwork
  o Utilities
  o Concrete placement
• Plans and specifications
• Tools and equipment
  o Metal detectors
  o Builders’ and laser levels
  o Theodolites
• Elevations and grades
  o Geodetic
  o Site specific
• Temporary benchmarks
  o Fire hydrants
  o Nail and ribbon
  o Grade stakes
• Permanent benchmarks
  o Monuments
  o Legal property pins
Program Content
Level 1

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
  o Lumber
  o Soil
  o Piping
  o Concrete
  o Masonry units
• Storage
• Environmental exposure
• Chemical exposure
• Manual lifting procedures
• Transport
• Hazards for handling / storing
  o Propane tanks
  o Oxy-acetylene tanks
• Secure materials
  o Propane tanks
  o Pipes
  o Lumber
Line (GAC): D PERFORM ROUTINE TRADE ACTIVITIES
Competency: D6 Install Membranes

Objectives
To be competent in this area, the individual must be able to:
- Describe the installation of membranes

LEARNING TASKS

1. Describe preparing for the installation of membranes
   - Prepare concrete
     - Roughing up
     - Washing
     - Grinding high spots
     - Parging
     - Priming
   - Prepare other surfaces
     - Filling low spots
     - Tight joints
     - Repairing ridges
   - Tool selection

2. Describe installing membranes
   - Following manufacturers’ specifications
   - Types
     - Polyethylene
     - Waterproofing membranes
     - Landscaping fabric
     - Fiberboard (Donnacona, Buffalo board)
   - Application methods
     - Gluing
     - Torchng
     - Spraying
     - Trowelling
     - Roller
     - Self adhesive sheet
   - Locations
     - Below grade
     - On walls
     - Behind masonry units
     - On decks
   - Protect with materials
     - Treated wood
     - Styrofoam
   - Inspection
   - Backfilling procedures
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
  o Styrofoam
  o Fireproofing materials
  o Straw
  o Fibreglass
• Applications
  o Preventing underground piping, sewers, and concrete from freezing
  o Structures
• Following manufacturers’ specifications
• Engineering requirements
• Installation process
  o Cut
  o Secure
  o Tape
  o Spray-on
Program Content
Level 1

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
  o Safety
  o Government regulations
  o Permits
  o Environmental
  o Pre job-hazard assessments
- Pre-existing site conditions
  o Existing utilities
  o Areas to protect prior to work being performed
- Worksite and set-up requirements
  o Locations of temporary buildings and fencing
  o Colour-coded flags and markers used to locate utilities
- Bring site to working condition
  o Removing unusable materials and debris
  o Clearing brush
  o 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
Program Content
Level 1

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 locating underground utilities
- Describe excavation, backfill and compaction
- Demonstrate excavation / backfill of a trench for utilities

LEARNING TASKS
1. Describe locating underground utilities
   - Safe work permit requirements
   - BC One Call
   - Soil conditions
   - Pre-existing site conditions and existing utilities
   - Expose utilities (daylighting / ground disturbance)

2. Describe the performance of excavation
   - Government regulations
   - Types of soil
     - Clay
     - Sand
     - Gravel
     - Silt
     - Organic or disturbed
   - Types of sub-grades
   - Depth and angle of repose of excavation
   - Pre-existing site conditions and existing utilities
   - Guide Heavy Equipment Operator to accomplish tasks
     - Digging to required depth and slope
     - Take measurements
   - Install temporary access and egress to trenches and other excavations
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)**

<table>
<thead>
<tr>
<th>Performance</th>
<th>The learner will excavate and/or backfill a trench for utilities to a specific grade.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>The learner will be given:</td>
</tr>
<tr>
<td></td>
<td>• PPE</td>
</tr>
<tr>
<td></td>
<td>• Materials and tools</td>
</tr>
<tr>
<td></td>
<td>• Task specifications</td>
</tr>
<tr>
<td>Criteria</td>
<td>The learner will be evaluated on:</td>
</tr>
<tr>
<td></td>
<td>• Safety</td>
</tr>
<tr>
<td></td>
<td>• Tool selection</td>
</tr>
<tr>
<td></td>
<td>• Tool usage</td>
</tr>
<tr>
<td></td>
<td>• Accuracy</td>
</tr>
<tr>
<td></td>
<td>• Adherence to task specifications</td>
</tr>
</tbody>
</table>

Tasks must be performed within specifications and time frames acceptable to industry, and the learner must achieve a minimum grade of 70%.
Program Content
Level 1

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 usage 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 usage of dust control methods
- Spark control methods
- Isolation or lockout / tag-out utilities
  - Water
  - Electrical
Line (GAC): E PERFORM SITE WORK
Competency: E4 Apply Excavation and Shoring Practices

Objectives
To be competent in this area, the individual must be able to:
- Describe excavation safety requirements
- Describe the excavation process
- Describe types and construction of trench shoring

LEARNING TASKS
1. Describe excavation safety requirements
   - Occupational Health and Safety (OHS) Regulations and WorkSafeBC Standards
     - Sloped trench walls
     - Combined sloping and shoring
     - Shoring
     - Benching
     - Soil types
     - Blasting signals
     - Access and egress
     - General public
     - Trench depth and angle of repose
   - Precautions when working around excavation equipment

2. Describe the excavation process
   - Call before you dig
   - Daylight existing utilities
   - Excavate to design grade
   - Access to excavations
   - Excavated materials
   - Backfilling and compaction

3. Describe types and construction of trench shoring
   - Excavations that require shoring
   - Types of shoring
     - Timber
     - Trench shields
     - Sheet pilings
   - Sequence for installing and removing shoring
   - Certification and inspection requirements
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
Program Content
Level 1

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
   - Frame and brace
     - Safety
     - Components
     - Procedure
     - Tools

7. Demonstrate the dismantling of scaffolding
   - Frame and brace
     - 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
Line (GAC): G PERFORM CONCRETE WORK
Competency: G1 Form Concrete

Objectives
To be competent in this area, the individual must be able to:
- Describe the installation of shoring for formwork
- Describe setting up, inspecting, maintaining and dismantling formwork
- Demonstrate the setting of edge forms

LEARNING TASKS

1. Describe installation of shoring for formwork
   - Types
     - Fixed
     - Telescoping
     - Scaffold
   - Hardware
     - Anchor pins
     - Spring clips
     - Base plates
   - Ratings and regulations
   - Spacing
   - Adjustments according to situation
   - Ensuring stable ground by installing
     - Mud sills
     - Compacting ground
   - Bracing near slab edge
   - Plumb shores

2. Describe setting up, inspecting, maintaining and dismantling formwork
   - Types
     - Steel
     - Handset (loose)
     - Void
   - Components
     - Strongbacks
     - Turnbuckles / form aligners
     - Walers
     - Clamps
     - Wedges
     - Ties and clips
   - Setting up
     - Ratings and applications of types
     - Materials used to create
     - Form bracing
     - Ground compaction
     - Assembling and fastening components
     - Usage of form liners for desired finish
     - Modifications as needed
LEARNING TASKS

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

3. Demonstrate the setting of edge forms

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%.
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:

- Describe mixing and installing concrete
- Describe transporting concrete on site
- Describe controlling concrete curing process
- Place and finish concrete flat work

LEARNING TASKS

1. Describe mixing concrete

   CONTENT
   - Types of concrete
   - Strengths
   - Aggregates and their properties
   - Admixtures
     - Plasticizers
     - Accelerators
   - Following instructions
     - Ratios
     - Mixing times
     - Compatibilities
   - Selecting materials for specific use
   - Plans for mixing according to
     - Work schedules
     - Weather conditions
     - Air flow
     - Humidity
   - Colouring concrete

2. Describe transporting concrete on site

   CONTENT
   - Access and egress considerations
   - Route plan
   - Transporting equipment
   - Usage of
     - Concrete pumps
     - Conveyors
     - Associated equipment
LEARNING TASKS

3. Describe installing components in concrete

- Components
  - Dowels
  - Safety lines
  - Keyways
  - Anchor bolts
  - Steel plates
  - Reinforcing steel

- Component installation methods for freshly placed concrete
  - Wet dowelling
  - Installing anchor bolts

- Cured concrete components installation methods
  - Drilling
  - Chipping
  - Saw cuts

- Measuring and laying out location of components

4. Describe placement of concrete

- Pour rates
- Concrete transportation and installation
  - Line pumps
  - Boom pumps
- Height from which concrete may be poured
- Additives
  - Accelerators
  - Plasticizers
- Surface preparation requirements
- Planning and sequencing concrete placement
- Ensuring level pour
  - Wet screeding
  - Using height sticks (screed bars)
- Vibrating concrete
- Raking concrete
- Screeding concrete
- Surface irregularities
  - Dips
  - High spots
  - Holes
- Spraying concrete materials
  - Shotcrete
  - Gunnite
LEARNING TASKS

5. Describe assisting with finishing concrete

   • Admixtures
     o Accelerators
     o Plasticizers
     o Colours
     o Hardeners
   • Types of finishes
     o Hard float
     o Broomed
     o Polished
     o Exposed aggregate
     o Burn finish
   • Finishing processes
     o Floating
     o Trowelling
     o Edging
   • Timing for finishing processes
   • Effects of weather conditions
   • Effects of surrounding areas
     o Fumes
     o Dust
     o Heat
   • Rate and time for cure
   • Usage of soaker hoses and sprinklers
   • Usage of materials for curing
     o Polyethylene
     o Burlap
     o Straw
   • Compounds and sealers

6. Describe controlling concrete curing process

   • Safety
   • Sequencing
   • Bracing
   • Tools

7. Demonstrate placing and finishing concrete flat work
**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%.
Program Content
Level 1

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
     o Sanitary
     o Storm
     o Drainage
   - Types of pipe
     o Plastic
     o Concrete
     o Galvanized
   - Connecting sewer pipe sections
     o Bell and spigot
     o Butt fusion
     o 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
     o Hydrants
     o Restraints
     o Fittings
   - Types of sewer pipe components
     o Manholes
     o Catch basins
     o Lawn basins
     o Fittings
   - Manhole construction
   - Establishing and maintaining grades of components
   - Establishing and installing bases
     o Pre-cast concrete
     o 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

   • Clearing the area
   • Cutting and filling to grade
     o Stake installation
   • Placing gravels
   • Compaction
   • Final elevation check

2. Describe placement of paving materials

   • Hazards
     o Burns
     o Exposure to chemicals
     o Traffic
     o Heavy duty mobile equipment
   • Chemical additives
   • Location of manholes and catch basins
   • Rake paving to base (sub) and finish-grade
   • Feathering around components
     o Manholes
     o Catch basins
     o Curbs
   • Manually compacting paving material
   • Applying adhesives, primers and sealers

3. Describe modification of existing paving materials

   • Amount of paving material to remove when repairing
   • Cutting asphalt to install utilities and components
   • Repairing defects
     o Pot holes
     o Cracks
   • Applying adhesives and primers
   • Digging out loose material, replacing with gravel, then compacting
Program Content
Level 1

Line (GAC): J PERFORM ROADWORK
Competency: J2 Install Roadwork Components

Objectives
To be competent in this area, the individual must be able to:
• Describe the installation of barriers, road markings and signs

LEARNING TASKS
1. Describe the installation of barriers

CONTENT
• Types
  o Pedestrian
  o Guard
  o Concrete Retention Barriers (Jersey / No-post)
• Materials
  o Concrete
  o Steel
  o Wood
  o Plastic
• Applications
  o Temporary
  o Permanent
• Selecting according to regulations and specifications
• Determining location
• Securing with fasteners
• Training and certification requirements
• Regulations
• Interpreting project-specific traffic control plan drawings
• Types of road markings
  o Reflective tape
  o Painted lines
• Types of road signs
  o Temporary
  o Permanent
• Securing signage

2. Describe the installation of road markings and signs
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
Program Content
Level 2

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 the alphabet of lines, symbols and abbreviations
- Describe the use of the parts of the drawings
- Interpret documents, drawings and specifications
- Draw a layout sketch

LEARNING TASKS
1. Describe the use of the parts of the drawings
   - Plot plan
   - Floor plan
   - Elevation
   - Sections
   - Details
   - Title block
   - Revisions
   - Schedules
   - Legends

2. Interpret documents, drawings and specifications
   - Blueprints
   - Engineering drawings
   - Sketches
   - Manufacturers’ specifications
   - Work orders
   - Governmental Codes
   - Checking material received against work orders and specifications

3. Draw a layout sketch
   - Alphabet of lines
   - Scale
   - Calculations
   - Symbols
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%.
Program Content
Level 2

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 PERFORMANCE 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
  o On land
  o In water
• Safety and rescue regulations
• Soil types and designations
• Types of machinery
  o Pile drivers
  o Pile drillers
  o Cranes
• Types of pilings
  o Concrete
  o H-beam
  o Sheet
  o Steel
• Rigging requirements
• Setting up and dismantling piling machines
• Setting up machinery by connecting hoses and compressors
• Changing work environments
  o Working on boats and barges
  o 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
Program Content
Level 2

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

CONTENT

• Erection
• Inspection
• Maintenance
• Tending to erectors
• Dismantling

2. Demonstrate the erection and dismantling of scaffolding

CONTENT

• 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  
Competency: G1  
PERFORM CONCRETE WORK  
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
   - Installation
   - Setting up
   - Inspection
   - Maintaining
   - Dismantling

2. Demonstrate setting forms for pony walls
   - 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
   - Mixing
   - Installing components
   - Placement
   - Vibration
   - Assisting with finishing concrete
   - Controlling concrete curing process

2. Demonstrate placing and finishing concrete for a pony wall
   - 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%.
Program Content
Level 2

Line (GAC): G PERFORM CONCRETE WORK
Competency: G3 Modify Concrete

Objectives
To be competent in this area, the individual must be able to:
- Describe drilling, coring and cutting of concrete
- Describe preparing concrete surface for add-ons
- Describe repairing concrete
- Describe concrete joints
- Describe refinishing concrete surfaces
- Demonstrate remedial finishing

LEARNING TASKS
1. Describe drilling, coring and cutting of concrete
   - Wet and dry drilling procedures
   - Types and properties
   - Reasons for drilling / coring / cutting concrete
     - Components
     - Running sleeves
     - Fastening items
     - Demolition
   - Embedded items
     - Water lines
     - Electrical conduit
     - Rebar

2. Describe preparing concrete surface
   - Deficiencies that can be repaired
   - Chemical agents
     - Bonding
     - Acids
   - Mechanical preparation of surface
     - Grinders
       - Diamond
       - Stone
       - Wire
       - Carbide
     - Jack hammers
     - Chipping hammers
     - Bush hammering
     - Pressure-washing
     - Media blasting
     - Scarifying
   - Cleaning surface after abrasion processes

3. Describe repairing concrete
   - Products used
     - Bonding agents
     - Epoxies
     - Grout
LEARNING TASKS

4. Describe installing concrete joints

5. Describe refinishing concrete surfaces

6. Demonstrate remedial finishing

CONTENT

• Installation of patching
• Finishing requirements
• Purpose
  o Control cracking
  o Shrinkage
• Types of joints
  o Expansion
  o Control
  o Isolation
  o Construction
• Depth and spacing
• Types of cuts
  o Green
  o Wet
  o Dry
• Plastic strips to control shrinkage cracks
• Methods
  o Painting
  o Epoxy coating
  o Acid staining
  o Acid etching
• Products used
  o Bonding agents
  o Patching materials
• Refinishing requirements
• Mechanical refinishing using equipment
• Parging
• Safety
• Sequencing
• Bracing
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%.
Program Content
Level 2

Line (GAC): G PERFORM CONCRETE WORK
Competency: G4 Install Grout, Epoxies and Caulking

Objectives
To be competent in this area, the individual must be able to:
• Mix and install grout, epoxies and / or caulking

LEARNING TASKS
1. Describe the installation of grout
   • Types of products and their applications
   • Following manufacturers’ specifications
   • Achieving required consistency
   • Applying to surfaces
   • Troweling
   • Time constraints
   • Shaping
   • Colour

2. Describe the installation of epoxies
   • Types of products and their applications
     o Liquid
     o Paste
   • Following manufacturers’ specifications
   • Hazards and precautions
   • Work planning
   • Mixing
   • Preparing surfaces by cleaning
   • Time constraints
   • Use of fillers
     o Insulation
     o Backing rod

3. Describe the installation of caulking
   • Types of products and their applications
     o Interior
     o Exterior
   • Following manufacturers’ specifications
   • Product properties and time constraints
   • Preparation of exposed surfaces
   • Applying a steady bead
   • Fillers
     o Insulation
     o Backing rod
   • Removal of excess caulking
4. Demonstrate mixing and installation of grout, epoxy or caulking
   • 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%.
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

   - 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

2. Describe mixing mortars and grouts
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
   - Cutting methods and tools
     - Brick saw
     - Guillotine
     - Chop saw
   - Procedures
   - Plan cuts to avoid waste

2. Describe the application and installation of lintels and rough bucks
   - Types of lintels
     - Channel iron
     - Wood
     - Pre-cast
     - Poured concrete
   - Applications of rough bucks
     - Window
     - Door frames
   - Installation of lintels and rough bucks

3. Describe washing masonry units
   - 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
### LEARNING TASKS

4. Describe assisting with the installation of refractory materials

<table>
<thead>
<tr>
<th>CONTENT</th>
</tr>
</thead>
</table>
| • **Types**  
  o Bricks  
  o Gunnite  
  o Ram  
 |  
| • **Locations**  
  o Boilers  
  o Furnaces  
  o Kilns  
 |  
| • Mortars used in applications  
| • Hazards and precautions  
| • Mixing  
| • Cleaning up refractory applications (rebound)  

5. Describe the usage of fireproofing materials

<table>
<thead>
<tr>
<th>CONTENT</th>
</tr>
</thead>
</table>
| • Following manufacturers’ specifications  
| • Hazards  
  o Particulates  
  o Electrical hazards  
 |  
| • **Types**  
  o Mineral wool  
  o Caulking  
  o Cementitious  
 |  
| • **Applications**  
  o Surface penetration  
  o Protecting beams  
  o Columns  
  o Walls  
 |  
| • Mix materials  
  o Spray-on  
  o Trowel-on  
 |  
| • Repair process  

---

Program Content  
Level 2  

Construction Craft Worker (Labourer)  
Industry Training Authority  
02/16
Program Content
Level 2

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 utility piping
- Describe modifying existing pipe
- Describe assisting with testing water and sewer lines

LEARNING TASKS

1. Describe the installation of utility piping

2. Describe modifying existing pipe

3. Describe assisting with testing water and sewer lines

CONTENT
- Installation
  - Water systems
  - Sewer systems
  - Utility components
- Types of pipe
  - Plastic
  - Ductile
  - Concrete
- Reasons for modification
  - Leaks
  - Repairs
  - Additions
- Repairing water breaks and leaks
  - Foam
  - Coatings
  - Quick set concrete
  - Clamps
  - Mechanical joints
- Use of bladders to isolate sections
- Tapping pipes for additional lines
- Recognizing hazardous piping materials
  - Asbestos
  - Lead
- Specifications related to water pressure
- Isolating sections of pipe using shut offs or bladders for testing
- Hydrotesting water and sewer lines
- Video-testing sewer lines
- Locating leaks
- Interpreting gauge readings
- Chemical addition for chlorination
Line (GAC): I PERFORM UTILITIES AND PIPELINE TASKS
Competency: I2 Perform Pipeline Activities

Objectives
To be competent in this area, the individual must be able to:
- Describe construction of right of ways
- Describe pipeline installation

LEARNING TASKS
1. Describe construction of right of ways
   - Safety
   - Recognize hazards
     - Animals
     - Insects
     - Falling trees
   - Environmental considerations
     - Highways
     - Rivers
     - Farmlands
     - Wetlands
   - Regulations
   - Jobsite-specific rules
   - Installation and interpretation of clearance markers and signage
   - Clearing brush
   - Rigging methods
   - Cribbing methods
   - Coating methods
   - Jeeping methods
   - Stringing methods
   - Directional drilling
   - Assisting
     - Bending crew
     - Welding crew
     - Engineer
     - Lowering in
   - Excavation, backfilling and compaction

2. Describe pipeline installation
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
   • 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

2. Describe assisting with locating and exposing defective area
   • scraper
   • Grinder
   • Buffer
   • Sandblasting
   • Spark hazard
   • Hammer

3. Describe removing existing coating
   • Guide equipment operator
   • Place the new section (pup / sleeve)
   • Blasting
   • Re-coating

4. Describe assisting with pup (sleeve) set up

5. Describe pipe protection
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)**

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coveralls (Paper)</td>
</tr>
<tr>
<td>Eye wash station</td>
</tr>
<tr>
<td>Face shield</td>
</tr>
<tr>
<td>Fire extinguisher</td>
</tr>
<tr>
<td>First aid kit</td>
</tr>
<tr>
<td>Fit tester kit</td>
</tr>
<tr>
<td>Flashlight</td>
</tr>
<tr>
<td>Gloves</td>
</tr>
<tr>
<td>Hard hat</td>
</tr>
</tbody>
</table>

### Standard Safety Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearing protection</td>
</tr>
<tr>
<td>High visibility vest</td>
</tr>
<tr>
<td>Knee board and pads</td>
</tr>
<tr>
<td>Light</td>
</tr>
<tr>
<td>Respirator (Particles, chemical and vapour)</td>
</tr>
<tr>
<td>Safety goggles / glasses</td>
</tr>
<tr>
<td>Soap</td>
</tr>
<tr>
<td>Spill Kit</td>
</tr>
<tr>
<td>Ladder (Extension, stepladder)</td>
</tr>
</tbody>
</table>

### Hand Tools

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable wrench</td>
</tr>
<tr>
<td>Bar (Wrecking, pin, crow, pry)</td>
</tr>
<tr>
<td>Broom</td>
</tr>
<tr>
<td>Brush</td>
</tr>
<tr>
<td>Bucket / Pail</td>
</tr>
<tr>
<td>Bull float</td>
</tr>
<tr>
<td>Calculator</td>
</tr>
<tr>
<td>Carpenter's pencils</td>
</tr>
<tr>
<td>Edger (Concrete)</td>
</tr>
<tr>
<td>Float (Wood, magnesium, steel, aluminium, rubber)</td>
</tr>
<tr>
<td>Hammer (Claw, sledge)</td>
</tr>
<tr>
<td>Hand level</td>
</tr>
<tr>
<td>Hand saw</td>
</tr>
<tr>
<td>Hand trowel</td>
</tr>
<tr>
<td>Marker</td>
</tr>
<tr>
<td>Measuring tape (Imperial and metric)</td>
</tr>
<tr>
<td>Mop</td>
</tr>
<tr>
<td>Pliers (Linesmen)</td>
</tr>
<tr>
<td>Rake (Concrete, landscaping, fan)</td>
</tr>
<tr>
<td>Screwdriver (Flat, phillips, robertson)</td>
</tr>
<tr>
<td>Shovel (Square, spade)</td>
</tr>
<tr>
<td>Sidewalk groover</td>
</tr>
<tr>
<td>Sponge</td>
</tr>
<tr>
<td>Square</td>
</tr>
<tr>
<td>Straightedge</td>
</tr>
<tr>
<td>Stringline</td>
</tr>
<tr>
<td>Water hose</td>
</tr>
<tr>
<td>Wheelbarrow</td>
</tr>
</tbody>
</table>

### Power Tools

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle grinder</td>
</tr>
<tr>
<td>Chipping gun and bit</td>
</tr>
<tr>
<td>Chipping hammer</td>
</tr>
<tr>
<td>Circular saw and blade</td>
</tr>
<tr>
<td>Concrete vibrator</td>
</tr>
<tr>
<td>Electric drill</td>
</tr>
<tr>
<td>Extension cord</td>
</tr>
<tr>
<td>Vacuum cleaner (Wet dry)</td>
</tr>
</tbody>
</table>

### Portable and Stationary Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool box</td>
</tr>
</tbody>
</table>

### Shop Equipment and Tools

**Required (Level-Specific)**

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compactor</td>
</tr>
<tr>
<td>Jack hammer</td>
</tr>
</tbody>
</table>

### Standard Safety Equipment
Training Provider Standards

- 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)
Training Provider Standards

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

A USE SAFE WORK PRACTICES
- BC Worker's Compensation Act, available at www.crownpub.bc.ca/.

B ORGANIZE WORK
- Alberta Labourer’s Training Trust Fund, Red Seal Study Guide.*

C USE TOOLS AND EQUIPMENT
- Alberta Labourer’s Training Trust Fund, Red Seal Study Guide.*

D PERFORM ROUTINE TRADE ACTIVITIES

E PERFORM SITE WORK
- Alberta Labourer’s Training Trust Fund, Red Seal Study Guide.*

F USE SCAFFOLDING AND ACCESS EQUIPMENT

G PERFORM CONCRETE WORK
- American Concrete Institute, ACI Manual of Concrete Practice, available at https://www.concrete.org/.
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 journeyperson.

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
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:

- Totaling 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;
- Totaling 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

<table>
<thead>
<tr>
<th>LINE</th>
<th>SUBJECT COMPETENCIES</th>
<th>THEORY WEIGHTING</th>
<th>PRACTICAL WEIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>USE SAFE WORK PRACTICES</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>B</td>
<td>ORGANIZE WORK</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>C</td>
<td>USE TOOLS AND EQUIPMENT</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>D</td>
<td>PERFORM ROUTINE TRADE ACTIVITIES</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>E</td>
<td>PERFORM SITE WORK</td>
<td>23%</td>
<td>10%</td>
</tr>
<tr>
<td>F</td>
<td>USE SCAFFOLDING AND ACCESS EQUIPMENT</td>
<td>6%</td>
<td>17%</td>
</tr>
<tr>
<td>G</td>
<td>PERFORM CONCRETE WORK</td>
<td>11%</td>
<td>30%</td>
</tr>
<tr>
<td>I</td>
<td>PERFORM UTILITIES AND PIPELINE TASKS</td>
<td>8%</td>
<td>14%</td>
</tr>
<tr>
<td>J</td>
<td>PERFORM ROADWORK</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Calculated by the Training Provider
(Construction Craft Worker (Labourer) in-school theory & practical subject competency weighting)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>60%</strong></td>
</tr>
</tbody>
</table>

Training Provider enters final in-school mark into ITA Direct Access

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IN-SCHOOL %</td>
<td></td>
</tr>
</tbody>
</table>

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 80%

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 20%

Calculated by ITA: Final Mark
The final mark for determining credit is calculated by ITA Direct Access. FINAL%
<table>
<thead>
<tr>
<th>LINE</th>
<th>SUBJECT COMPETENCIES</th>
<th>THEORY WEIGHTING</th>
<th>PRACTICAL WEIGHTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>USE SAFE WORK PRACTICES</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td>B</td>
<td>ORGANIZE WORK</td>
<td>10%</td>
<td>16%</td>
</tr>
<tr>
<td>D</td>
<td>PERFORM ROUTINE TRADE ACTIVITIES</td>
<td>8%</td>
<td>13%</td>
</tr>
<tr>
<td>E</td>
<td>PERFORM SITE WORK</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>F</td>
<td>USE SCAFFOLDING AND ACCESS EQUIPMENT</td>
<td>8%</td>
<td>20%</td>
</tr>
<tr>
<td>G</td>
<td>PERFORM CONCRETE WORK</td>
<td>13%</td>
<td>31%</td>
</tr>
<tr>
<td>H</td>
<td>PERFORM MASONRY WORK</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>I</td>
<td>PERFORM UTILITIES AND PIPELINE TASKS</td>
<td>19%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Calculated by the Training Provider  
(CCW in-school theory & practical subject competency weighting)  

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.
Appendices

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.
Appendices

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
- Scrapper
- 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.
Appendices

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)

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.
### Appendixes

**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

---

**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.*
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.
Appendices

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

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.