Apprenticeship and Industry Training

Apprenticeship Curriculum Guide Companion Document

Insulator (Heat and Frost)

Alberta Government

Apprenticeship and Industry Training

Insulator (Heat and Frost): apprenticeship education program curriculum guide companion document
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Program Guide

Introduction

Apprenticeship and Industry Training (AIT) utilizes the curriculum guide as a document to guide and direct the developers of training plans. The curriculum guide is written to reflect and identify competence-based learning through competence and supporting competence statements. Although this model does provide more flexibility and responsiveness for the stakeholders, it also creates challenges to developers of lesson plans and assessment.

The Purpose

The primary purpose of this document will be to expand on competence and supporting compentence statements by identifying and providing outcome and objective statements that are associated with the supporting competence statement.

Outcome Statements

Outcome statements are an observable major task or work activity that an entry-level journeyperson performs for compensation.

Objective Statements

Objective statements are the knowledge or skill an apprentice learns or demonstrates while attending in-classroom instruction. They support achievement of the outcome statement by the apprentice.

Course Content Overview

The term ***"In Context"*** indicates that the supporting competence will become integrated learning and/or utilized as a component of the competence statement. It will **not** have an assigned weighting and will **not** be assessed as an examination item.

PERIOD ONE COURSE CONTENT

CORE COMPETENCE ONE: *Foundational Skills, Responsibilities, and Procedures*

Competence Statement:	Supporting Competences:		
Apply foundational skills essential to convey and receive critical training and workplace information.	***A*** Apply legislation, regulations and practices ensuring safe work in this trade.	***B*** Demonstrate knowledge of working at material handling and working at heights.	***C*** Apply industry standard practices for hazardous materials and fire protection.
	D Organizes tasks and work area. ***In Context***	***E*** Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	***F*** Demonstrate safety awareness and safe work practices.
	G Demonstrate numeracy ***In Context***		

CORE COMPETENCE TWO: *Tools and Equipment*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools, equipment, and instruments.	***A*** Select, use, and maintain hand tools.	***B*** Select, use, and maintain power tools.	***C*** Select, use, and maintain specialized tools

CORE COMPETENCE THREE: *Drafting, Drawings, and Specifications*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.	***A*** Interpret drawing conventions.	***B*** Interpret isometric drawings.	***C*** Interpret architectural drawings.
	D Interpret specifications. ***In Context***		

CORE COMPETENCE FOUR: *Insulation Materials*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency regarding the selection and application of insulation materials.	***A*** Perform methods of material handling and storage.	***B*** Install insulation for hot applications.	***C*** Install insulation for cold applications.
	D Install insulation for dual applications.	***E*** Prepare substrate for insulation installation.	***F*** Apply adhesives, mastics, and insulating cements.
	G Install insulation fasteners.	***H*** Install insulation fittings.	***I*** Apply vapour barriers.
	J Apply insulation finishes.		

CORE COMPETENCE FIVE: *Specialized Installation*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.	***A*** Describe the asbestos abatement process.	***B*** Describe the lead abatement process.	***C*** Describe the mould remediation process.
	D Demonstrate procedure used to reduce heat and sound transfer in a residential building envelope.		

PERIOD TWO COURSE CONTENT

CORE COMPETENCE ONE: *Foundational Skills, Job Responsibilities, and Procedures*

Competence Statement:	Supporting Competences:		
Apply foundational skills essential to convey and receive critical training and workplace information.	***A*** Apply legislation, regulations and practices ensuring safe work in this trade. — ***In Context***	***B*** Demonstrate knowledge of working at material handling and working at heights. — ***In Context***	***C*** Apply industry standard practices for hazardous materials and fire protection. — ***In Context***
	D Organizes tasks and work area. — ***In Context***	***E*** Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement. — ***In Context***	***F*** Demonstrate safety awareness and safe work practices. — ***In Context***
	G Demonstrate numeracy. — ***In Context***		

CORE COMPETENCE TWO: *Tools and Equipment*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools, equipment, and instruments.	***A*** Select, use, and maintain hand tools. — ***In Context***	***B*** Select, use, and maintain power tools. — ***In Context***	***C*** Select, use, and maintain specialized tools — ***In Context***

CORE COMPETENCE THREE: Drafting, *Drawings, and Specifications*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.	***A*** Interpret drawing conventions. — ***In Context***	***B*** Interpret commercial drawings	***C*** Fabricate and install commercial pattern-developed fittings.
	G Interpret specifications. — ***In Context***		

CORE COMPETENCE FOUR: *Commercial Installation*

Competence Statement:	Supporting Competences:		
	A	***B***	***C***
Demonstrate knowledge, understanding, and proficiency when installing insulation within a commercial environment.	Describe the insulation processes on a commercial system.	Fabricate and install insulation on commercial HVAC system.	Install insulation finishes on commercial piping.
	D	***E***	
	Install insulation finishes on commercial equipment.	Fabricate and install extruded foam insulation.	

CORE COMPETENCE FIVE: *Industrial Installation*

Competence Statement:	Supporting Competences:		
	A	***B***	***C***
Demonstrate knowledge, understanding, and proficiency when installing insulation within an industrial environment, and on cryogenic systems.	Install insulation on a cryogenic system.	Install vapour barriers on a cryogenic system.	Describe finishing applications on a cryogenic system.

CORE COMPETENCE SIX: *Specialized Installation*

Competence Statement:	Supporting Competences:		
	A	***B***	***C***
Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.	Install acoustic insulation.	Describe acoustic insulation panels.	Describe underground insulation applications.
	D	***E***	
	Describe refractory insulation systems.	Describe reflective insulation systems	

PERIOD THREE COURSE CONTENT

CORE COMPETENCE ONE: *Foundational Skills, Job Responsibilities, and Procedures*

Competence Statement:	Supporting Competences:		
Apply foundational skills essential to convey and receive critical training and workplace information.	**A** Apply legislation, regulations and practices ensuring safe work in this trade. — *In Context*	**B** Demonstrate knowledge of working at material handling and working at heights. — *In Context*	**C** Apply industry standard practices for hazardous materials and fire protection. — *In Context*
	D Organizes tasks and work area. — *In Context*	**E** Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement. — *In Context*	**F** Demonstrate safety awareness and safe work practices. — *In Context*
	G Demonstrate numeracy — *In Context*		

CORE COMPETENCE TWO: *Tools and Equipment*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools, equipment, and instruments.	**A** Select, use, and maintain hand tools. — *In Context*	**B** Select, use, and maintain power tools. — *In Context*	**C** Select, use, and maintain specialized tools

CORE COMPETENCE THREE: *Drafting, Drawings, and Specifications*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.	**A** Interpret drawing conventions. — *In Context*	**B** Fabricate and install industrial pattern-developed fittings on piping.	**C** Fabricate and install pattern-developed components on vessels and equipment.
	D Interpret specifications.	**E** Interpret industrial drawings.	

CORE COMPETENCE FOUR: ***Industrial Installation***

Competence Statement:	Supporting Competences:		
	A	***B***	***C***
Demonstrate knowledge, understanding, and proficiency when installing insulation within an industrial environment, and on cryogenic systems.	Describe the insulation process of an industrial system.	Install insulation finishes on industrial piping.	Install insulation systems on vessels and equipment.

CORE COMPETENCE FIVE: ***Specialized Installation***

Competence Statement:	Supporting Competences:
	A
Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.	Describe thermal effectiveness.

PERIOD FOUR COURSE CONTENT

CORE COMPETENCE ONE: *Foundational Skills, Job Responsibilities, and Procedures*

Competence Statement:	Supporting Competences:		
Apply foundational skills essential to convey and receive critical training and workplace information.	**A** Apply legislation, regulations and practices ensuring safe work in this trade. — *In Context*	**B** Demonstrate knowledge of working at material handling and working at heights. — *In Context*	**C** Apply industry standard practices for hazardous materials and fire protection. — *In Context*
	D Organizes tasks and work area. — *In Context*	**E** Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	**F** Demonstrate safety awareness and safe work practices. — *In Context*
	G Demonstrate numeracy — *In Context*	**H** Display coaching skills.	

CORE COMPETENCE TWO: *Tools and Equipment*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools, equipment, and instruments.	**A** Select, use, and maintain hand tools. — *In Context*	**B** Select, use, and maintain power tools. — *In Context*	**C** Select, use, and maintain specialized tools — *In Context*

CORE COMPETENCE THREE: Drafting, *Drawings, and Specifications*

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.	**A** Interpret drawing conventions. — *In Context*	**B** Fabricate and install pattern-developed removable covers.	**C** Calculate and prepare a material estimate.
	D Interpret specifications. — *In Context*	**E** Calculate the total cost for an insulation project.	

CORE COMPETENCE FOUR: ***Commercial Installation***

Competence Statement:	Supporting Competences:	
Demonstrate knowledge, understanding, and proficiency when installing insulation within a commercial environment.	***A*** Describe the insulation processes on a commercial system. ***In Context***	***B*** Describe insulation procedures for commercial buildings.

CORE COMPETENCE FIVE: ***Specialized Installation***

Competence Statement:	Supporting Competences:		
Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.	***A*** Describe fireproofing systems.	***B*** Apply firestopping.	***C*** Apply spray insulation.
	D Install removable soft covers.	***E*** Install removable hard covers.	***F*** Fabricate and install specialized insulation components.
	G Describe pre-insulated panels.	***H*** Calculate energy efficiency.	

Period One
Course Content

(6 weeks – 180 hours)

Period One Core Competences	Weighting
Foundational Skills, Job Responsibilities, and Procedures	**9%**
Tools and Equipment	**9%**
Drafting, Drawings, and Specifications	**8%**
Insulation Materials	**64%**
Specialized Installation	**10%**

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Weighting - 9%

An Insulator utilizes a comprehensive set of foundational skills and abilities that are crucial for understanding and executing their job responsibilities, as well as applying procedures to everyday activities. These skills are developed, practiced, and refined through a combination of personal and professional learning environments, making them essential tools in the learner's working portfolio.

These skills encompass technical knowledge, problem-solving abilities, and the capacity to make informed decisions, all of which contribute to job readiness. The development of these competencies ensures that learners can perform tasks efficiently and safely, adapt to new situations, and maintain high standards of work.

Furthermore, these skills support the learner in exhibiting positive behaviors and effective communication, which are vital for teamwork and customer interactions. They also help in managing the demands and challenges of everyday life, fostering resilience and adaptability.

Throughout the apprenticeship education program, these supporting competencies are not only observed and studied but are also practiced in real-world settings. This hands-on experience is integral to reinforcing theoretical knowledge and ensuring that learners are fully prepared to enter the workforce as competent, job-ready professionals.

CS

Apply foundational skills essential to convey and receive critical training and workplace information.

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Supporting Competence		Taxonomy	Weighting
1A.	Interpret and apply legislation, regulations and practices ensuring safe work in this trade.	**I, II**	**19%**

Outcomes for this supporting competence include:

I. Apply legislation, regulations and practices ensuring safe work in this trade.

1. Demonstrate the application of the Occupational Health and Safety Act, Regulation and Code.
2. Describe the employer's and employee's role with Occupational Health and Safety (OH&S) regulations, Global Harmonized System (GHS), fire regulations, Workers Compensation Board regulations and related advisory bodies and agencies.
3. Describe industry practices for hazard assessment and control procedures.
4. Describe the responsibilities of worker and employers to apply emergency procedures.
5. Describe tradesperson attitudes with respect to housekeeping, personal protective equipment, and emergency procedures.
6. Describe the roles and responsibilities of employers and employees with the selection and use of personal protective equipment (PPE).
7. Maintain required PPE for tasks.
8. Use required PPE for tasks.

1B.	Demonstrate knowledge of working at material handling and working at heights.	**I, II**	**19%**

Outcomes for this supporting competence include:

I. Use industry standard practices for climbing, lifting, rigging and hoisting in this trade.

1. Describe manual lifting procedures.
2. Describe rigging hardware and associated safety factors.
3. Select equipment for rigging loads.
4. Describe hoisting and load moving procedures.
5. Maintain personal protective equipment (PPE) for climbing, lifting and load moving equipment.
6. Use PPE for climbing, lifting and load moving equipment.

1C.	Interpret and apply industry standard practices for hazardous materials and fire protection.	**I, II**	**12%**

Outcomes for this supporting competence include:

I. Apply industry standard practices for hazardous materials and fire protection in this trade.

1. Describe roles, responsibilities, features, and practices related to the Global Harmonized System (GHS) program.
2. Describe three key elements of GHS.
3. Describe handling, storing and transporting procedures for hazardous material.
4. Describe venting procedures when working with hazardous materials.
5. Describe hazards, classes, procedures, and equipment related to fire protection.

1D.	Organizes tasks and work area.	**I, II**	**In Context**

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Supporting Competence		Taxonomy	Weighting
1E.	Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	**I**	**25%**
	Outcomes for this supporting competence include: ***I. Manage an apprenticeship to earn journeyperson certification.*** 1. Describe the contractual responsibilities of the apprentice, employer and Alberta Apprenticeship and Industry Training. 2. Describe the purpose of the apprentice record book. 3. Describe the procedure for changing employers during an active apprenticeship. 4. Describe the purpose of the course outline. 5. Describe the procedure for advancing through apprenticeship. 6. Describe advancement opportunities in this trade.		
1F.	Apply safety awareness and safe work practices.	**I, II, III**	**25%**
	Outcomes for this supporting competence include: ***I. Apply safe work practices while working in the Insulator (Heat & Frost) trade.*** 1. Identify the physical hazards common to the insulator trade. 2. Identify defective PPE and safety equipment. 3. Describe procedures used to control physical hazards. 4. Use PPE specific to the insulator trade		
1G.	Demonstrate numeracy.	**I**	**In Context**

Core Competence 2: Tools and Equipment

Weighting – 9%

An Insulator uses a wide array of tools, equipment, and instruments in their daily work. These items enhance an individual's capability to perform tasks and functions effectively. Tools come in various forms and configurations, necessitating training and knowledge to ensure their safe and effective use.

This section will concentrate on the knowledge and procedures related to tools, equipment, and instruments. The components of this section will be interwoven and incorporated throughout all stages of the apprenticeship education program.

CS

Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools and equipment.

Core Competence 2: Tools and Equipment

Supporting Competence		Taxonomy	Weighting
2A.	Select, use, and maintain hand tools.	**I, II**	**37%**
	Outcomes for this supporting competence include: ***I. Use manual equipment.*** 1. Describe hand tools used in the trade. 2. Describe manual shop equipment. 3. Use hand tools. 4. Use manual shop equipment.		
2B.	Select, use, and maintain power tools.	**I, II**	**25%**
	Outcomes for this supporting competence include: ***I. Use power equipment.*** 1. Describe power tools used in the trade. 2. Describe power shop equipment. 3. Use power equipment.		
2C.	Select, use, and maintain speciality tools.	**I, II**	**38%**
	Outcomes for this supporting competence include: ***I. Operate a stud and pin welder.*** 1. Describe stud and pin welders. 2. Describe fasteners used with stud and pin welders. 3. Use a stud and pin welder.		

Core Competence 3: Drafting, Drawings, and Specifications

Weighting – 8%

An Insulator frequently relies on drawings and specifications to complete projects. These documents provide a wealth of details, including clear instructions for the construction, maintenance, or repair of a project or its components, dimensions of individual or collective components, and lists of materials required for the project. These documents are crafted using a universal language understood by skilled trades professionals.

This period of training will focus on the knowledge necessary to interpret and understand the relationship between drawings and specifications. Additionally, it will further instruct the learner in the sketching of objects, enhancing their ability to accurately represent and communicate technical details.

CS

Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.

Core Competence 3: Drafting, Drawings, and Specifications

Supporting Competence		Taxonomy	Weighting
3A.	Interpret drawing conventions.	**I**	**43%**
	Outcomes for this supporting competence include: ***I. Interpret conventions used in technical drawings.*** 1. Describe lines used in technical drawings. 2. Describe symbols used in technical drawings. 3. Describe abbreviations used in technical drawings. 4. Describe scales used in technical drawings. 5. Use scaled rulers. 6. Interpret technical drawings.		
3B.	Interpret isometric drawings.	**I, II**	**28%**
	Outcomes for this supporting competence include: ***I. Interpret isometric drawings.*** 1. Describe isometric drawings. 2. Interpret isometric drawings.		
3C.	Interpret architectural drawings.	**I, II**	**29%**
	Outcomes for this supporting competence include: ***I. Interpret architectural drawings.*** 1. Describe orthographic drawings. 2. Interpret orthographic drawings. 3. Interpret specifications.		
3D.	Interpret specifications.	**I, II**	**In Context**

Core Competence 4: Insulation Materials

Weighting – 64%

An Insulator must demonstrate knowledge, understanding, and proficiency in the selection and application of insulation materials. This involves identifying appropriate materials for various types of projects, understanding their properties and benefits, and applying them correctly to ensure optimal performance.

This training period will focus on building expertise in evaluating different insulation materials, determining their suitability for specific applications, and mastering the techniques for their proper installation. This knowledge is crucial for ensuring energy efficiency, safety, and durability in insulation projects.

CS	Demonstrate knowledge, understanding, and proficiency regarding the selection and application of insulation materials.

Core Competence 4: Insulation Materials

Supporting Competence		Taxonomy	Weighting
4A.	Demonstrate knowledge and understanding of material handling and storage	**I, II**	**2%**

Outcomes for this supporting competence include:

I. Perform methods of material handling.

1. Describe methods of material handling.
2. Describe methods of material storage.
3. Perform methods of material handling.

4B.	Install insulation for hot applications.	**I, II, III**	**12%**

Outcomes for this supporting competence include:

I. Install insulation for hot applications.

1. Describe ceramic fibre insulation.
2. Describe ceramic fibre insulation installation procedures.
3. Describe calcium silicate insulation.
4. Describe calcium silicate insulation installation procedures.
5. Install calcium silicate insulation.

4C.	Install insulation for cold applications.	**I, II**	**16%**

Outcomes for this supporting competence include:

I. Install insulation for cold applications.

1. Describe extruded foam plastic insulation.
2. Describe procedures using extruded foam insulation.
3. Describe cellular glass insulation.
4. Describe procedures using cellular glass insulation.
5. Describe polystyrene (isocyanate) insulation.
6. Describe procedures of polystyrene (isocyanate) insulation.
7. Describe polyurethane insulation.
8. Describe procedures using polyurethane insulation.
9. Install polystyrene (isocyanate) insulation.
10. Install polyurethane insulation.

4D.	Install insulation for dual applications	**I, II**	**23%**

Outcomes for this supporting competence include:

I. Install insulation for dual applications.

1. Describe mineral wool insulation.
2. Describe procedures using mineral wool insulation.
3. Describe fibreglass insulation.
4. Describe procedures using fibreglass insulation.
5. Describe nanofibre insulation.
6. Describe procedures using nanofibre insulation.
7. Install mineral wool insulation.
8. Install fibreglass insulation.

Core Competence 4: Insulation Materials

Supporting Competence		Taxonomy	Weighting
4E.	Prepare substrate for insulation installation.	**I, II**	**4%**

Outcomes for this supporting competence include:

I. Prepare substrate for insulation installation.

1. Identify substrate for insulation installation.
2. Describe coatings for substrate preparation.
3. Prepare substrate for insulation installation.

4F.	Apply adhesives, mastics, and insulating cements.	**I, II**	**16%**

Outcomes for this supporting competence include:

I. Apply adhesives, mastics and insulating cements.

1. Describe adhesives.
2. Apply adhesives.
3. Describe mastics.
4. Apply mastics.
5. Describe insulating cements.
6. Apply insulating cements.

4G.	Install insulation fasteners.	**I, II**	**5%**

Outcomes for this supporting competence include:

I. Install insulation fasteners.

1. Describe insulation fasteners.
2. Calculate insulation fastener spacing.
3. Install insulation fasteners.

4H.	Install insulation fittings.	**I, II, III**	**12%**

Outcomes for this supporting competence include:

I. Install insulation fittings.

1. Describe insulation fittings.
2. Describe nesting insulation.
3. Describe staggered insulation.
4. Calculate insulation fitting dimensions.
5. Fabricate insulation fittings.
6. Install insulation fittings.

4I.	Apply vapour barriers.	**I, II**	**5%**

Outcomes for this supporting competence include:

I. Apply vapour barriers.

1. Describe vapour barriers.
2. Apply vapour barriers.

4J.	Apply insulation finishes.	**I, II**	**5%**

Outcomes for this supporting competence include:

I. Apply insulation finishes.

1. Describe insulation finishes.
2. Calculate coverages for insulation finishes.

Core Competence 4: Insulation Materials		
Supporting Competence	**Taxonomy**	**Weighting**
3. Apply insulation finishes.		

Core Competence 5: Commercial Installation

Weighting - 10%

An Insulator must exhibit technical knowledge, understanding, and proficiency when installing insulation within a commercial setting. This includes mastering the various types of insulation materials and their specific uses, as well as the precise techniques required for effective installation.

This period of training will focus on ensuring that commercial insulation meets industry standards for energy efficiency and safety, managing the workspace efficiently, and adhering to all relevant regulations and codes. This training period will emphasize practical, hands-on experience in commercial environments, equipping the learner to competently execute insulation projects across diverse commercial contexts.

Demonstrate knowledge, understanding, and proficiency when installing insulation within a commercial environment.

Core Competence 5: Commercial Installation			
Supporting Competence		**Taxonomy**	**Weighting**
5A.	Safely manage and execute the asbestos abatement process.	**I, II**	**50%**
	Outcomes for this supporting competence include: ***I. Describe asbestos abatement.*** 1. Describe asbestos. 2. Identify regulations pertaining to asbestos. 3. Describe safety procedures for asbestos abatement. 4. Describe asbestos abatement. **II. Meet the requirements of an approved asbestos worker training certification.** 1. Identify restricted and non-restricted areas. 2. Identify asbestos and asbestos containing materials. 3. Describe health effects associated with exposure to asbestos. 4. Describe management of asbestos at the work site. 5. Identify regulatory agencies.		
5B.	Safely manage and execute the lead abatement process.	**I, II**	**20%**
	Outcomes for this supporting competence include: ***I. Describe lead abatement.*** 1. Describe lead.		

Core Competence 5: Commercial Installation

Supporting Competence		Taxonomy	Weighting
	2. Identify regulations pertaining to lead. 3. Describe safety procedures for lead abatement. 4. Describe lead abatement.		
5C.	Safely manage and execute the mould remediation process.	**I, II**	**20%**
	Outcomes for this supporting competence include: ***I. Describe mould remediation.*** 1. Describe mould. 2. Identify regulations pertaining to mould. 3. Describe safety procedures for mould remediation. 4. Describe mould remediation.		
5D.	Demonstrate procedures used to reduce heat and sound transfer.	**I, II**	**10%**
	Outcomes for this supporting competence include: ***I. Demonstrate procedures used to reduce heat and sound transfer.*** 1. Describe the design concepts of building envelope systems. 2. Describe heat transfer through building components. 3. Describe insulation techniques. 4. Describe sound reduction techniques. 5. Describe the function of barriers in the building envelope. 6. Describe energy-efficient construction techniques.		

Period Two
Course Content

(6 weeks – 180 hours)

Period Two Core Competences	Weighting
Foundational Skills, Job Responsibilities, and Procedures	**In Context**
Tools, Equipment, and Instruments	**In Context**
Drafting, Drawings, and Specifications	**16%**
Commercial Installation	**56%**
Industrial Installation	**18%**
Specialized Installation	**10%**

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Weighting – In Context

An Insulator utilizes a comprehensive set of foundational skills and abilities that are crucial for understanding and executing their job responsibilities, as well as applying procedures to everyday activities. These skills are developed, practiced, and refined through a combination of personal and professional learning environments, making them essential tools in the learner's working portfolio.

These skills encompass technical knowledge, problem-solving abilities, and the capacity to make informed decisions, all of which contribute to job readiness. The development of these competencies ensures that learners can perform tasks efficiently and safely, adapt to new situations, and maintain high standards of work.

Furthermore, these skills support the learner in exhibiting positive behaviors and effective communication, which are vital for teamwork and customer interactions. They also help in managing the demands and challenges of everyday life, fostering resilience and adaptability.

Throughout the apprenticeship education program, these supporting competencies are not only observed and studied but are also practiced in real-world settings. This hands-on experience is integral to reinforcing theoretical knowledge and ensuring that learners are fully prepared to enter the workforce as competent, job-ready professionals.

CS

Apply foundational skills essential to convey and receive critical training and workplace information.

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures			
Supporting Competence		**Taxonomy**	**Weighting**
1A.	Apply legislation, regulations and practices ensuring safe work in this trade.	**I, II**	**In Context**
1B.	Demonstrate knowledge of working at material handling and working at heights.	**I, II**	**In Context**
1C.	Apply industry standard practices for hazardous materials and fire protection.	**I, II**	**In Context**
1D.	Organizes tasks and work area.	**I, II**	**In Context**
1E.	Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	**I**	**In Context**
1F.	Demonstrate safety awareness and safe work practices.	**I, II**	**In Context**
1G.	Demonstrate numeracy.	**I**	**In Context**

Core Competence 2: Tools and Equipment

Weighting – In Context

An Insulator uses a wide array of tools, equipment, and instruments in their daily work. These items enhance an individual's capability to perform tasks and functions effectively. Tools come in various forms and configurations, necessitating training and knowledge to ensure their safe and effective use.

This section will concentrate on the knowledge and procedures related to tools, equipment, and instruments. The components of this section will be interwoven and incorporated throughout all stages of the apprenticeship education program.

CS

Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools and equipment.

Core Competence 2: Tools and Equipment			
Supporting Competence		**Taxonomy**	**Weighting**
2A.	Select, use, and maintain hand tools.	**I, II**	**In Context**
2B.	Select, use, and maintain power tools.	**I, II**	**In Context**
2C.	Select, use, and maintain speciality tools.	**I, II**	**In Context**

Core Competence 3: Drafting, Drawings, and Specifications

Weighting – 16%

An Insulator frequently relies on drawings and specifications to complete projects. These documents provide a wealth of details, including clear instructions for the construction, maintenance, or repair of a project or its components, dimensions of individual or collective components, and lists of materials required for the project. These documents are crafted using a universal language understood by skilled trades professionals.

This period of training will focus on the knowledge necessary to interpret and understand the relationship between drawings and specifications. Additionally, it will further instruct the learner in the sketching of objects, enhancing their ability to accurately represent and communicate technical details.

Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.

Core Competence 3: Drafting, Drawings, and Specifications

Supporting Competence		Taxonomy	Weighting
3A.	Interpret drawing conventions.	**I**	**In Context**
3B.	Interpret commercial drawings.	**I, II**	**46%**
	Outcomes for this supporting competence include: ***I. Interpret commercial drawings.*** 1. Interpret commercial drawings. 2. Calculate insulation requirements. 3. Calculate insulation finish requirements.		
3C.	Fabricate and install commercial pattern-developed fittings.	**I, II**	**54%**
	Outcomes for this supporting competence include: ***I. Install commercial pattern-developed fitting.*** 1. Describe pattern development techniques for commercial finishes. 2. Perform calculations for commercial pattern-developed fittings. 3. Perform commercial pattern development on an equal tee. 4. Fabricate commercial pattern-developed fittings for an equal tee. 5. Install commercial pattern-developed fittings for an equal tee. 6. Perform commercial pattern development on an unequal tee. 7. Fabricate commercial pattern-developed fittings for an unequal tee. 8. Install commercial pattern-developed fittings for an unequal tee.		
3D.	Interpret specifications.	**I, II**	**In Context**

Core Competence 4: Commercial Installation

Weighting - 56%

An Insulator must exhibit technical knowledge, understanding, and proficiency when installing insulation within a commercial setting. This includes mastering the various types of insulation materials and their specific uses, as well as the precise techniques required for effective installation.

This period of training will focus on ensuring that commercial insulation meets industry standards for energy efficiency and safety, managing the workspace efficiently, and adhering to all relevant regulations and codes. This training period will emphasize practical, hands-on experience in commercial environments, equipping the learner to competently execute insulation projects across diverse commercial contexts.

CS

Demonstrate knowledge, understanding, and proficiency when installing insulation within a commercial environment.

Core Competence 4: Commercial Installation

Supporting Competence		Taxonomy	Weighting
4A.	Demonstrate knowledge and understanding of the commercial insulation system processes.	**I**	**4%**
	Outcomes for this supporting competence include: ***I. Describe commercial insulation system processes.*** 1. Describe materials used in commercial insulation system processes. 2. Describe components of commercial insulation system processes. 3. Describe commercial insulation system processes.		
4B.	Install insulation on commercial HVAC system.	**I, II**	**24%**
	Outcomes for this supporting competence include: ***I. Install insulation on commercial HVAC equipment.*** 1. Describe materials used to insulate a commercial HVAC system. 2. Describe components of commercial HVAC system 3. Describe commercial HVAC equipment. 4. Install insulation on commercial HVAC ductwork.		
4C.	Install insulation finishes on commercial piping.	**I, II**	**24%**
	Outcomes for this supporting competence include: ***I. Install insulation finishes on commercial piping.*** 1. Describe insulation finishes on commercial piping. 2. Calculate coverage of insulation finishes on commercial piping. 3. Install insulation finishes on commercial piping.		

Core Competence 4: Commercial Installation

Supporting Competence		Taxonomy	Weighting
4D.	Install insulation finishes on commercial equipment.	**I, II**	**23%**

Outcomes for this supporting competence include:

I. Install insulation finishes on commercial equipment.

1. Describe insulation finishes on commercial equipment.
2. Calculate coverage of insulation finishes on commercial equipment.
3. Install insulation finishes on commercial equipment.

4E.	Fabricate and install extruded foam insulation.	**I, II, III**	**25%**

Outcomes for this supporting competence include:

I. Install extruded foam insulation.

1. Describe extruded foam insulation.
2. Calculate layout for extruded foam insulation.
3. Layout extruded foam insulation for concentric reducers.
4. Fabricate extruded foam insulation for concentric reducers.
5. Install extruded foam insulation for concentric reducers.
6. Layout extruded foam insulation for eccentric reducers.
7. Fabricate extruded foam insulation for eccentric reducers.
8. Install extruded foam insulation for eccentric reducers.
9. Layout extruded foam insulation for a 90-degree elbow.
10. Fabricate extruded foam insulation for a 90-degree elbow.
11. Install extruded foam insulation for a 90-degree elbow.

II. Describe finishes to extruded foam insulation.

1. Describe finishes to extruded foam insulation.

Core Competence 5: Industrial Installation

Weighting - 18%

An Insulator must exhibit technical knowledge, understanding, and proficiency when installing insulation within an industrial setting and on cryogenic systems. This includes mastering the various types of insulation materials and their specific uses, as well as the precise techniques required for effective installation.

This period of training will focus on ensuring that the insulation meets industry standards for energy efficiency and safety, managing the workspace efficiently, and adhering to all relevant regulations and codes. This training period will emphasize practical, hands-on experience in industrial environments, equipping the learner to competently execute insulation projects across diverse industrial contexts.

CS

Demonstrate knowledge, understanding, and proficiency when installing insulation within industrial environments and on cryogenic systems.

Core Competence 5: Industrial Installation

Supporting Competence		Taxonomy	Weighting
5A.	Install insulation on a cryogenic system.	**I, II**	**56%**
	Outcomes for this supporting competence include: ***I. Install cryogenic insulation.*** 1. Describe cryogenic insulation. 2. Describe cryogenic insulation installation processes. 3. Install cryogenic insulation.		
5B.	Install vapour barriers on a cryogenic system.	**I, II**	**38%**
	Outcomes for this supporting competence include: ***I. Install cryogenic vapour barriers.*** 1. Describe processes for installing cryogenic vapour barriers. 2. Install cryogenic vapour barriers.		
5C.	Demonstrate knowledge and understanding of finishing applications on a cryogenic system.	**I**	**6%**
	Outcomes for this supporting competence include: ***I. Describe cryogenic finishing applications.*** 1. Describe cryogenic finishes. 2. Describe cryogenic finishing applications.		

Core Competence 6: Specialized Installation

Weighting - 10%

An Insulator must demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes. This requires mastering the various types of insulation materials and their specific applications in these unique settings. Additionally, the Insulator must be well-versed in the procedures and safety protocols involved in abatement or remediation processes, ensuring compliance with regulations and standards.

This training period will focus on practical, hands-on experience in these specialized environments, equipping the learner to effectively install insulation and perform abatement or remediation tasks with expertise and precision.

CS

Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.

Core Competence 6: Specialized Installation

Supporting Competence		Taxonomy	Weighting
6A.	Install acoustic insulation.	**I, II**	**55%**
	Outcomes for this supporting competence include: ***I. Install acoustic insulation.*** 1. Describe acoustic insulation. 2. Calculate acoustic insulation requirements. 3. Install acoustic insulation. ***II. Apply finishes to acoustic insulation.*** 1. Describe finishes to acoustic insulation. 2. Calculate requirements for finishes to acoustic insulation. 3. Apply finishes to acoustic insulation.		
6B.	Demonstrate knowledge and understanding of acoustic insulation panels.	**I**	**12%**
	Outcomes for this supporting competence include: ***I. Describe acoustic insulation panels.*** 1. Describe acoustic insulation panels. 2. Describe applications of acoustic insulation panels.		
6C.	Demonstrate knowledge and understanding of underground insulation applications.	**I**	**11%**
	Outcomes for this supporting competence include: ***I. Describe underground insulation applications.*** 1. Describe underground insulation. 2. Describe underground insulation applications.		
6D.	Demonstrate knowledge and understanding of refractory insulation systems.	**I**	**11%**
	Outcomes for this supporting competence include: ***I. Describe refractory insulation systems.*** 1. Describe refractory insulation systems.		
6E.	Demonstrate knowledge and understanding of reflective insulation systems	**I**	**11%**
	Outcomes for this supporting competence include: ***I. Describe reflective insulation systems.*** 1. Describe reflective insulation systems.		

Period Three
Course Content

(6 weeks – 180 hours)

Period Three Core Competences	Weighting
Foundational Skills, Job Responsibilities and Procedures	**In Context**
Tools, Equipment, and Instruments	**1%**
Drafting, Drawings, and Specifications	**40%**
Industrial Installation	**58%**
Specialized Installation	**1%**

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Weighting – In Context

An Insulator utilizes a comprehensive set of foundational skills and abilities that are crucial for understanding and executing their job responsibilities, as well as applying procedures to everyday activities. These skills are developed, practiced, and refined through a combination of personal and professional learning environments, making them essential tools in the learner's working portfolio.

These skills encompass technical knowledge, problem-solving abilities, and the capacity to make informed decisions, all of which contribute to job readiness. The development of these competencies ensures that learners can perform tasks efficiently and safely, adapt to new situations, and maintain high standards of work.

Furthermore, these skills support the learner in exhibiting positive behaviors and effective communication, which are vital for teamwork and customer interactions. They also help in managing the demands and challenges of everyday life, fostering resilience and adaptability.

Throughout the apprenticeship education program, these supporting competencies are not only observed and studied but are also practiced in real-world settings. This hands-on experience is integral to reinforcing theoretical knowledge and ensuring that learners are fully prepared to enter the workforce as competent, job-ready professionals.

CS

Apply foundational skills essential to convey and receive critical training and workplace information.

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures			
Supporting Competence		**Taxonomy**	**Weighting**
1A.	Apply legislation, regulations and practices ensuring safe work in this trade.	**I, II**	**In Context**
1B.	Demonstrate knowledge of working at material handling and working at heights.	**I, II**	**In Context**
1C.	Apply industry standard practices for hazardous materials and fire protection.	**I, II**	**In Context**
1D.	Organizes tasks and work area.	**I, II**	**In Context**
1E.	Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	**I**	**In Context**
1F.	Demonstrate safety awareness and safe work practices.	**I, II**	**In Context**
1G.	Demonstrate numeracy.	**I**	**In Context**

Core Competence 2: Tools and Equipment

Weighting – 1%

An Insulator uses a wide array of tools, equipment, and instruments in their daily work. These items enhance an individual's capability to perform tasks and functions effectively. Tools come in various forms and configurations, necessitating training and knowledge to ensure their safe and effective use.

This section will concentrate on the knowledge and procedures related to tools, equipment, and instruments. The components of this section will be interwoven and incorporated throughout all stages of the apprenticeship education program.

CS

Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools and equipment.

Core Competence 2: Tools and Equipment			
Supporting Competence		**Taxonomy**	**Weighting**
2A.	Select, use, and maintain hand tools.	**I, II**	**In Context**
2B.	Select, use, and maintain power tools.	**I, II**	**In Context**

Core Competence 2: Tools and Equipment

Supporting Competence		Taxonomy	Weighting
2C.	Select, use, and maintain speciality tools.	**I, II**	**100%**
	Outcomes for this supporting competence include: ***I. Operate Thermographic Camera.*** 1. Describe the practical uses and limitations of a thermographic camera.		

Core Competence 3: Drafting, Drawings, and Specifications

Weighting – 40%

An Insulator frequently relies on drawings and specifications to complete projects. These documents provide a wealth of details, including clear instructions for the construction, maintenance, or repair of a project or its components, dimensions of individual or collective components, and lists of materials required for the project. These documents are crafted using a universal language understood by skilled trades professionals.

This period of training will focus on the knowledge necessary to interpret and understand the relationship between drawings and specifications. Additionally, it will further instruct the learner in the sketching of objects, enhancing their ability to accurately represent and communicate technical details.

CS

Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.

Core Competence 3: Drafting, Drawings, and Specifications

Supporting Competence		Taxonomy	Weighting
3A.	Interpret drawing conventions.	I	In Context
3B.	Fabricate and install industrial pattern-developed fittings on piping.	**I, II, III**	**35%**
	Outcomes for this supporting competence include: ***II. Install industrial pattern-developed fittings on piping.*** 1. Describe pattern development techniques for industrial fittings. 2. Perform calculations for industrial pattern-developed fittings. 3. Perform pattern development for industrial lateral. 4. Fabricate industrial pattern-developed lateral. 5. Install industrial pattern-developed lateral. 6. Perform pattern development for industrial equal tee. 7. Fabricate industrial pattern-developed equal tee. 8. Install industrial pattern-developed equal tee.		

Core Competence 3: Drafting, Drawings, and Specifications

Supporting Competence		Taxonomy	Weighting
	9. Perform pattern development for industrial unequal tee. 10. Fabricate industrial pattern-developed unequal tee. 11. Install industrial pattern-developed unequal tee. 12. Perform pattern development for industrial gore elbow. 13. Fabricate industrial pattern-developed gore elbow. 14. Install industrial pattern-developed gore elbow. 15. Perform pattern development for industrial endcap. 16. Fabricate industrial pattern-developed endcap. 17. Install industrial pattern-developed endcap 18. Perform pattern development for industrial bevel. 19. Fabricate industrial pattern-developed bevel. 20. Install industrial pattern-developed bevel. 21. Perform pattern development for industrial pan-out. 22. Fabricate industrial pattern-developed pan-out. 23. Install industrial pattern-developed pan-out.		
3C.	Fabricate and install pattern-developed components on vessels and equipment.	**I, II, III**	**35%**
	Outcomes for this supporting competence include: ***I. Install pattern-developed components on vessels and equipment.*** 1. Describe pattern development techniques for semi-elliptical heads. 2. Describe pattern development techniques for triangulation patterns. 3. Describe pattern development techniques for radial line patterns. 4. Describe pattern development techniques for parallel line patterns. 5. Perform calculations for industrial pattern-developed components. 6. Perform pattern development for semi-elliptical head. 7. Fabricate industrial pattern-developed for semi-elliptical head. 8. Install industrial pattern-developed components on semi-elliptical head. 9. Perform pattern development for a triangulation cone. 10. Fabricate industrial pattern-developed for triangulation cone. 11. Install industrial pattern-developed components triangulation cone.		
3D.	Interpret specifications.	**I, II**	**8%**
	Outcomes for this supporting competence include: ***I. Interpret specifications.*** 1. Identify standards used in the insulation industry. 2. Interpret line designation. 3. Interpret specifications on a set of drawings.		
3E.	Interpret industrial drawings.	**II**	**22%**
	Outcomes for this supporting competence include: ***I. Interpret industrial drawings.*** 1. Interpret industrial drawings. 2. Interpret piping and instrumentation diagrams. 3. Calculate insulation requirements from industrial drawings. 4. Calculate insulation finish requirements from industrial drawings.		

Core Competence 4: Industrial Installation

Weighting - 58%

An Insulator must exhibit technical knowledge, understanding, and proficiency when installing insulation within an industrial setting and on cryogenic systems. This includes mastering the various types of insulation materials and their specific uses, as well as the precise techniques required for effective installation.

This period of training will focus on ensuring that the insulation meets industry standards for energy efficiency and safety, managing the workspace efficiently, and adhering to all relevant regulations and codes. This training period will emphasize practical, hands-on experience in industrial environments, equipping the learner to competently execute insulation projects across diverse industrial contexts.

Demonstrate knowledge, understanding, and proficiency when installing insulation within industrial environments and on cryogenic systems.

Core Competence 4: Industrial Installation

Supporting Competence		Taxonomy	Weighting
4A.	Demonstrate knowledge and understanding of the insulation process on an industrial system.	**I, II**	**4%**
	Outcomes for this supporting competence include: ***I. Describe industrial insulation.*** 1. Describe materials used in industrial insulation system processes. 2. Describe components of industrial insulation system processes. 3. Describe industrial insulation system processes.		
4B.	Install insulation finishes on industrial piping.	**I, II**	**58%**
	Outcomes for this supporting competence include: ***I. Install insulation finishes on industrial piping.*** 1. Describe insulation finishes on industrial piping. 2. Calculate coverage of insulation finishes on industrial piping. 3. Install insulation finishes on industrial piping.		
4C.	Install insulation systems on vessels and equipment.	**I, II**	**38%**

Core Competence 4: Industrial Installation

Supporting Competence	Taxonomy	Weighting

Outcomes for this supporting competence include:

I. Install insulation systems on vessels and equipment.

1. Describe insulation finishes on vessels and equipment.
2. Describe lags and scored rigid insulation.
3. Calculate coverage of insulation finishes on vessels and equipment.
4. Install insulation finishes on vessels and equipment.

Core Competence 5: Specialized Installation

Weighting - 1%

An Insulator must demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes. This requires mastering the various types of insulation materials and their specific applications in these unique settings. Additionally, the Insulator must be well-versed in the procedures and safety protocols involved in abatement or remediation processes, ensuring compliance with regulations and standards.

This training period will focus on practical, hands-on experience in these specialized environments, equipping the learner to effectively install insulation and perform abatement or remediation tasks with expertise and precision.

Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.

Core Competence 5A: Structures

Supporting Competence		Taxonomy	Weighting
5A.	Demonstrate knowledge and understanding of thermal effectiveness.	**I, II**	**100%**

Outcomes for this supporting competence include:

I. Describe thermal effectiveness.

1. Describe thermal efficiency.
2. Describe heat loss detection.

Period Four
Course Content

(6 weeks – 180 hours)

Period Four Core Competences	Weighting
Foundational Skills, Job Responsibilities and Procedures	**5%**
Tools, Equipment, and Instruments	**In Context**
Drafting, Drawings, and Specifications	**42%**
Commercial Installation	**2%**
Specialized Installation	**51%**

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Weighting – 5%

An Insulator utilizes a comprehensive set of foundational skills and abilities that are crucial for understanding and executing their job responsibilities, as well as applying procedures to everyday activities. These skills are developed, practiced, and refined through a combination of personal and professional learning environments, making them essential tools in the learner's working portfolio.

These skills encompass technical knowledge, problem-solving abilities, and the capacity to make informed decisions, all of which contribute to job readiness. The development of these competencies ensures that learners can perform tasks efficiently and safely, adapt to new situations, and maintain high standards of work.

Furthermore, these skills support the learner in exhibiting positive behaviors and effective communication, which are vital for teamwork and customer interactions. They also help in managing the demands and challenges of everyday life, fostering resilience and adaptability.

Throughout the apprenticeship education program, these supporting competencies are not only observed and studied but are also practiced in real-world settings. This hands-on experience is integral to reinforcing theoretical knowledge and ensuring that learners are fully prepared to enter the workforce as competent, job-ready professionals.

CS

Apply foundational skills essential to convey and receive critical training and workplace information.

Core Competence 1: Foundational Skills, Job Responsibilities, and Procedures

Supporting Competence		Taxonomy	Weighting
1A.	Apply legislation, regulations and practices ensuring safe work in this trade.	**I, II**	**In Context**
1B.	Demonstrate knowledge of working at material handling and working at heights.	**I, II**	**In Context**
1C.	Apply industry standard practices for hazardous materials and fire protection.	**I, II**	**In Context**
1D.	Organizes tasks and work area.	**I, II**	**In Context**
1E.	Manage an apprenticeship to earn journeyperson certification and Red Seal endorsement.	**I**	**80%**
	Outcomes for this supporting competence include: ***I. Use Red Seal products to challenge an Interprovincial examination.*** 1. Identify Red Seal products used to develop Interprovincial examinations. 2. Use Red Seal products to prepare for an Interprovincial examination.		
1F.	Demonstrate safety awareness and safe work practices.	**I, II**	**In Context**
1G.	Demonstrate numeracy.	**I**	**In Context**
1H.	Display coaching skills.	**I**	**20%**
	I. Display coaching skills. 1. Describe coaching skills used for training apprentices.		

Core Competence 2: Tools and Equipment

Weighting – In Context

An Insulator uses a wide array of tools, equipment, and instruments in their daily work. These items enhance an individual's capability to perform tasks and functions effectively. Tools come in various forms and configurations, necessitating training and knowledge to ensure their safe and effective use.

This section will concentrate on the knowledge and procedures related to tools, equipment, and instruments. The components of this section will be interwoven and incorporated throughout all stages of the apprenticeship education program.

CS	Demonstrate knowledge, understanding and proficiency regarding the use and maintenance of tools and equipment.

Core Competence 2: Tools and Equipment

Supporting Competence		Taxonomy	Weighting
2A.	Select, use, and maintain hand tools.	**I, II**	**In Context**
2B.	Select, use, and maintain power tools.	**I, II**	**In Context**
2C.	Select, use, and maintain speciality tools.	**I, II**	**In Context**

Core Competence 3: Drafting, Drawings, and Specifications

Weighting – 41%

An Insulator frequently relies on drawings and specifications to complete projects. These documents provide a wealth of details, including clear instructions for the construction, maintenance, or repair of a project or its components, dimensions of individual or collective components, and lists of materials required for the project. These documents are crafted using a universal language understood by skilled trades professionals.

This period of training will focus on the knowledge necessary to interpret and understand the relationship between drawings and specifications. Additionally, it will further instruct the learner in the sketching of objects, enhancing their ability to accurately represent and communicate technical details.

CS	Demonstrate knowledge, understanding, and proficiency when interpreting drawings and/or specifications.

Core Competence 3: Drafting, Drawings, and Specifications

Supporting Competence		Taxonomy	Weighting
3A.	Interpret drawing conventions.	**I**	**In Context**
3B.	Fabricate and install pattern-developed removable covers.	**I, II, III**	**32%**
	Outcomes for this supporting competence include: ***I. Fabricate removable covers.*** 1. Describe pattern development techniques for removable covers. 2. Perform calculations for removable covers.		

Core Competence 3: Drafting, Drawings, and Specifications			
Supporting Competence		**Taxonomy**	**Weighting**
	3. Perform industrial pattern development for removable covers. 4. Fabricate removable covers. 5. Install removable covers.		
3C.	Calculate and prepare a material estimate.	**II**	**34%**
	Outcomes for this supporting competence include: ***I. Prepare a material estimate.*** 1. Interpret drawings and specifications for material. 2. Interpret drawings and specifications for measurements. 3. Calculate material required. 4. Prepare material estimate.		
3D.	Interpret specifications.	**I**	**In Context**
3E.	Calculate the total cost for an insulation project.	**I, II**	**34%**
	Outcomes for this supporting competence include: ***I. Calculate the total cost for an insulation project.*** 1. Determine labour costs for a project. 2. Determine material costs for a project. 3. Determine overhead costs for a project. 4. Calculate the total cost for an insulation project.		

Core Competence 4: Commercial Installation

Weighting - 2%

An Insulator must exhibit technical knowledge, understanding, and proficiency when installing insulation within a commercial setting. This includes mastering the various types of insulation materials and their specific uses, as well as the precise techniques required for effective installation.

This period of training will focus on ensuring that commercial insulation meets industry standards for energy efficiency and safety, managing the workspace efficiently, and adhering to all relevant regulations and codes. This training period will emphasize practical, hands-on experience in commercial environments, equipping the learner to competently execute insulation projects across diverse commercial contexts.

CS

Demonstrate knowledge, understanding, and proficiency when installing insulation within a commercial environment.

Core Competence 4: Commercial Installation

Supporting Competence		Taxonomy	Weighting
4A.	Demonstrate knowledge and understanding of the insulation process on a commercial system.	**I, II**	**In Context**
4B.	Demonstrate knowledge and understanding of insulation procedures for commercial buildings.	**I**	**100%**

Outcomes for this supporting competence include:

I. Describe insulation procedures for commercial buildings.

1. Describe the design concepts of commercial building envelope systems.
2. Describe heat transfer through commercial building components.
3. Describe insulation techniques in commercial construction.
4. Describe sound reduction techniques in commercial construction.
5. Describe the function of barriers in commercial buildings.

Core Competence 5: Specialized Installation

Weighting - 52%

An Insulator must demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes. This requires mastering the various types of insulation materials and their specific applications in these unique settings. Additionally, the Insulator must be well-versed in the procedures and safety protocols involved in abatement or remediation processes, ensuring compliance with regulations and standards.

This training period will focus on practical, hands-on experience in these specialized environments, equipping the learner to effectively install insulation and perform abatement or remediation tasks with expertise and precision.

CS

Demonstrate knowledge, understanding, and proficiency when installing insulation within specialized environments and performing abatement or remediation processes.

Core Competence 5: Specialized Installation

Supporting Competence		Taxonomy	Weighting
5A.	Demonstrate knowledge and understanding of fireproofing systems.	**I, II**	**5%**

Outcomes for this supporting competence include:

I. Describe fireproofing systems.

1. Identify regulations regarding fireproofing systems.

Core Competence 5: Specialized Installation

Supporting Competence		Taxonomy	Weighting
	2. Describe fireproofing components. 3. Describe fireproofing systems.		
5B.	Apply firestopping.	**I, II**	**11%**
	Outcomes for this supporting competence include: ***I. Apply firestopping.*** 1. Identify regulations regarding firestopping systems. 2. Describe firestopping components. 3. Describe firestopping systems. 4. Apply firestopping.		
5C.	Apply spray insulation.	**I, II**	**11%**
	Outcomes for this supporting competence include: ***I. Apply spray insulation.*** 1. Describe components of spray insulation. 2. Describe spray insulation systems. 3. Describe spray sealers and coatings. 4. Apply spray insulation.		
5D.	Install removable soft covers.	**I, II**	**5%**
	Outcomes for this supporting competence include: ***I. Install soft removable covers.*** 1. Describe removable soft covers. 2. Layout removable soft cover. 3. Install a removable soft cover.		
5E.	Fabricate and install removable hard covers.	**I, II**	**11%**
	Outcomes for this supporting competence include: ***I. Install hard removable covers.*** 1. Describe removable hard covers. 2. Layout removable hard covers. 3. Fabricate a removable hard cover. 4. Install a removable hard cover.		
5F.	Fabricate and install specialized insulation components.	**I, II, III**	**49%**
	Outcomes for this supporting competence include: ***I. Install specialized insulation components.*** 1. Describe pattern development techniques for specialized insulation components. 2. Perform calculations for specialized insulation components. 3. Perform industrial pattern development for specialized insulation components. 4. Fabricate specialized insulation components. 5. Install specialized insulation components. 6. Perform industrial pattern development for eccentric reducers.		

Core Competence 5: Specialized Installation

Supporting Competence		Taxonomy	Weighting
	7. Fabricate specialized insulation for eccentric reducers. 8. Install specialized insulation on eccentric reducers. 9. Perform industrial pattern development for square-to-round. 10. Fabricate specialized insulation for square-to-round pattern. 11. Install specialized insulation on a square-to-round. 12. Perform industrial pattern development for square-to-square. 13. Fabricate specialized insulation for square-to-square pattern. 14. Install specialized insulation on a square-to-square. 15. Perform industrial pattern development for rectangle-to-rectangle. 16. Fabricate specialized insulation for a rectangle-to-rectangle. 17. Install specialized insulation on a rectangle-to-rectangle. 18. Perform industrial pattern development for rectangle-to-round. 19. Fabricate specialized insulation for a rectangle-to-round. 20. Install specialized insulation on a rectangle-to-round. 21. Perform industrial pattern development spherical head. 22. Fabricate specialized insulation for a spherical head. 23. Install specialized insulation on a spherical head.		
5G.	Demonstrate knowledge and understanding of pre-insulated panels.	**I**	**4%**
	Outcomes for this supporting competence include: ***I. Describe pre-insulated panels.*** 1. Describe pre-insulated panel components. 2. Describe pre-insulated panel systems.		
5H.	Demonstrate knowledge and understanding on the concepts of energy efficiency.	**I**	**4%**
	Outcomes for this supporting competence include: ***I. Describe concepts of energy efficiency.*** 1. Identify energy efficiency programs related to the insulator industry. 2. Describe concepts of energy efficiency. 3. Calculate energy efficiency.		

Taxonomy verb list

This is a list of commons verbs used to demonstrate the level and/or complexity of a given taxonomy. It is only intended as a guide and is not meant to exclude additional verbs.

Taxonomy I *(Recall It)*

Verb	
Identify	List
Describe	Define
Explain	Recognize

Taxonomy II *(Do It)*

Verb	
Apply	Prepare
Sketch	Layout
Draw	Use
Interpret	Calibrate
Calculate	Analyze
Perform	Design
Install	Inspect

Taxonomy III *(Know It)*

Verb	
Demonstrate	Use
Operate	Build
Maintain	Construct
Commission	Fabricate
Service	Troubleshoot
Repair	

Apprenticeship
and Industry Training

Alberta Trades. World Ready.