

Insulator (Heat and Frost) Level 4

Insulator (Heat and Frost)

Unit: D1 Blueprints and Specifications III

Level: Four

Duration: 21 hours

Theory: 7 hours

Practical: 14 hours

Overview:

This unit, which builds on *B1 – Blueprints and Specifications I* and *C1 – Blueprints and Specifications II*, is designed to provide the apprentice with additional knowledge about industrial blueprints and specifications.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
1. Review unit <i>B1 – Blueprints and Specifications I</i>.	20%
a. Interpret blueprints	
b. Interpret specifications	
2. Read industrial blueprints and specifications.	80%
a. Importance of accurate and precise interpretation	
b. Identify factors	
• Nomenclature	
• Isometric flowsheets	
• Line numbers	
• Number of fittings	
• Thickness of insulation	
c. Identify symbols and abbreviations	
• Elbows	
• Tees	
• Valves	
• Welds	
d. Determine actual dimensions	

Insulator (Heat and Frost)

Unit: D2 Industrial and Commercial Applications IV

Level: Four

Duration: 35 hours

Theory: 21 hours

Practical: 14 hours

Overview:

This unit, which builds on *A6 – Industrial and Commercial Applications I*, *B3 – Industrial and Commercial Applications II* and *C3 – Industrial and Commercial Applications III*, is designed to provide the apprentice with additional knowledge about industrial and commercial applications. The unit covers layouts and installation of cladding, jacketing and finishes for piping and fittings.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
1. Review unit C2 – Routine Trade Practices III.	45%
a. Trade-related math	
• Applying math concepts in the trade	
b. Layouts	
• Parallel line development	
• Panout	
• Tank head	
2. Describe and perform layouts.	20%
a. Triangulation	
• Measurements and calculations	
• Square to round	
• Rectangle to round	
3. Perform installation of cladding, jacketing and finishes for piping and fittings.	35%
a. Application	
b. Measurements and calculations	
c. Allowances	
d. Fastening methods	
e. Sealing methods	

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Unit: D3 Removable Covers II

Level: Four

Duration: 28 hours

Theory: 7 hours

Practical: 21 hours

Overview:

This unit, which builds on *C4 – Removable Covers I*, is designed to provide the apprentice with additional knowledge about removable covers. The unit covers fabrication and installation of removable hard covers.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
1. Describe fabrication and fastening of hard removable covers.	10%
a. Types of material	
b. Measurements and calculations	
c. Fabrication procedures	
• Allowances	
d. Application procedures	
e. Fastening methods	
2. Perform fabrication of hard removable covers.	75%
a. Measurements and calculations	
b. Fabrication procedures	
• Allowances	
3. Perform installation of hard removable covers.	15%
a. Application procedures	
b. Fastening methods	

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Unit: D4 Fire Stopping II

Level: Four

Duration: 14 hours

Theory: 7 hours

Practical: 7 hours

Overview:

This unit, which builds on *A7 – Fire Stopping I*, is designed to provide the apprentice with additional knowledge about fire stopping and installation of fireproofing.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
1. Review unit A7 – Fire Stopping I.	50%
a. Fire stopping materials	
b. Fire stopping penetrations	
c. Installation of fire stopping systems	
d. Fireproof systems	
2. Perform installation of fireproofing.	50%
a. Types of materials	
b. Measurements and calculations	
c. Application procedures	
d. Fastening methods	
e. Application of protective coverings	

Insulator (Heat and Frost)

Unit: D5 Journeyperson Trainer

Level: Four

Duration: 7 hours

Theory: 7 hours

Practical: 0 hours

Overview:

Level One in-school technical training offers an entry-level orientation to the challenges of apprenticeship training as it relates to the development of core tasks and skill requirements, as well as social competencies. This unit introduces senior apprentices to the responsibilities of workplace training that they will assume as supervising journeypersons. Most trades have a rich tradition of refreshing and sharing their trade skills from one generation of trade practitioner to the next. This unit orients senior apprentices to some of the practical and conceptual tools that can enable them to contribute to this trade heritage when they become certified journeypersons and, ultimately, journeyperson trainers.

The journeyperson's obligation to assist entry-level apprentices to develop skills and knowledge is complex and challenging. It involves safety considerations, employer expectations, provincial regulations, as well as the tradition of skills stewardship that links modern practice with the long history of workplace teaching and learning that defines the apprenticeable trades. The ability to offer timely and appropriate support to apprentices is itself an important area of trade learning. This unit presents material intended to help refine this ability through reflection and discussion by senior apprentices, and discussion with their in-school instructor and journeyperson trainer.

This content reflects Manitoba and Canadian standards prescribed for journeyperson-level supervisory capabilities, as well as key topics in current research on the importance of workplace training in apprenticeship systems. These detailed descriptors represent suggested focal points or guidelines for potentially worthwhile exploration, and are neither mandatory nor exhaustive.

Note: No percentage-weightings for test purposes are prescribed for this unit's objectives. Instead, a 'Pass/Fail' grade will be recorded for the unit in its entirety.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
<p>1. Compare/contrast role-options and responsibilities of the supervising journeyperson.</p> <p>a. Implicit vs. explicit standards and content: training goals are/are not codified; assessment measures are/are not used</p> <p>b. Accountability for results: e.g. journeyperson is/is not required to prepare performance evaluation that could affect apprentice's employability or wage-rate, etc.</p> <p>c. Long-term vs. short-term supervision assignments – e.g., considerable latitude/little latitude for apprentice to learn from mistakes</p> <p>d. Formally vs. informally structured – e.g. supervision assignment is part of a prescribed cycle of assignments involving coordination among multiple journeypersons; apprentice is trained according to an individual training plan negotiated with employer</p> <p>e. Types of supervisory role options and what is implied by each:</p> <ul style="list-style-type: none"> • Journeyperson Trainer (JT) role: often initiated by someone other than apprentice, 	n/a

and limited to a particular skill set, task, or production requirement

- Mentor role: often initiated by apprentice, and relatively open-ended regarding content, duration, etc.
- Peer role: typically involves individual upgrading or cross-training of one journeyperson by another; can include senior apprentice assisting less-experienced trade learner
- Coordinator role: often a senior-level journeyperson appointed by an organization to assume responsibilities for monitoring progression of groups of apprentices
- Other roles: may be improvised by journeyperson, such as combination or multiple roles of the above

2. Describe and demonstrate common requirements about providing journeyperson level supervision. n/a

- a. Apprenticeship learning adapted to journeyperson supervision assignments and a journeyperson perspective
 - Application of adult education concepts to trades teaching and learning (e.g. responsibilities and expectations of senior-level apprentices)
 - Practical significance of 'styles' of adult learning and teaching
 - Helping senior-level apprentices integrate in-school technical training and on-the-job practical training experiences
 - Providing help and guidance about new tasks and skills
 - Providing help and guidance about fixing mistakes
 - Learning and teaching "the ropes" – socialization of apprentice within a community of trade practice (e.g. how to borrow a tool, interrupt a journeyperson, seek advice of experienced co-workers)
 - Coverage and documentation of prescribed tasks and subtasks where applicable.
 - Discuss the limits of the journeyperson trainers' own responsibilities and competence (e.g. scope, willingness to train, etc.)
 - Benefits of maintaining a personal record of achievements, ideas, and needs as a journeyperson trainer (e.g. resume, portfolio, training credentials, logbook, etc.)
- b. Individual reflection and guided group discussion about personal experiences of workplace learning as an apprentice
 - Identification of best and worst practices of journeyperson trainer
 - Identification of workplace and other factors that can contribute to good and bad trades teaching/learning experiences
 - Development of professional standards and work ethics about responsibility to share one's knowledge and skill with others in the workplace (e.g., use/misuse of humour, rigour, discretion, craft-pride, etc.)
 - Qualities of a good journeyperson trainer
 - Components of workplace journeyperson training
 - Processes and recommended practices re: journeyperson training
 - Troubleshooting problems re: supervision assignments
- c. Role of assessment in supervising, coaching, or guiding other people to learn or improve their skills (e.g. formative and summative evaluation), and how this might contribute to how the journeyperson-level supervision task is approached in future
- d. Compare and contrast discussion results with current knowledge and resources about workplace training methods as they apply to journeyperson-level supervision assignments
- e. Other (as may be specified by instructor)

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Unit: D6 Pre-Interprovincial Examination Review

Level: Four

Duration: 70 hours

Theory: 70 hours

Practical: 0 hours

Overview:

This unit offers senior apprentices a systematic review of skills and knowledge required to pass the Inter-Provincial Examination. It promotes a purposeful personal synthesis between on-the-job learning and the content of in-school technical training. The unit includes information about the significance of Provincial certification and the features of the Inter-Provincial Examination.

Note: No percentage-weightings for test purposes are prescribed for this unit's objectives. Instead, a 'Pass/Fail' grade will be recorded for the unit in its entirety.

Objectives and Content:	<u>Percent of Unit Mark (%)</u>
<p>1. Describe the significance, format and general content of Inter-Provincial (IP) Examinations for the trade of Insulator (Heat and Frost).</p> <p>a. Scope and aims of Inter-Provincial certification; value of certifications</p> <p>b. Obligations of candidates for Inter-Provincial certification</p> <ul style="list-style-type: none"> • Relevance of Inter-Provincial Examinations to current, accepted trade practices; industry-based provincial and national validation of test items • Supplemental Policy (retesting) • Confidentiality of examination content <p>c. Multiple-choice format (four-option) item format, Red Seal standards for acceptable test items</p> <p>d. Government materials relevant to the Inter-Provincial Examinations for apprentice Construction Electrician</p> <ul style="list-style-type: none"> • Red Seal Occupational Standard (RSOS); prescribed scope of the skills and knowledge which comprise the trade • RSOS "Pie-chart" and its relationship to content distribution of Inter-Provincial Examination items • Apprenticeship Manitoba Technical Training package 	n/a
<p>2. Identify resources, strategies and other considerations for maximizing successful completion of written examinations.</p> <p>a. Personal preparedness</p> <ul style="list-style-type: none"> • Rest • Nutrition • Personal study regimen • Prior experience in test situations (e.g., Unit Tests) <p>b. Self-assessment, consultation and personal study plan</p> <ul style="list-style-type: none"> • Self-assessment of individual strengths/weaknesses in trade related skills and 	n/a

knowledge

- Approved textbooks
- Study groups

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| 3. Review program content regarding common occupational skills. | n/a |
| 4. Review program content regarding industrial applications. | n/a |
| 5. Review program content regarding commercial applications. | n/a |
| 6. Review program content regarding applications common to industrial and commercial. | n/a |
| 7. Review program content regarding specialized applications. | n/a |
| 8. Review program content regarding asbestos, lead and mould abatement. | n/a |
