Lather (Interior Systems Mechanic)
Level 4

Rev. May 2014

Apprenticeship Manitoba

Lather (Interior Systems Mechanic)

Unit: A5 Pre-Certification Review

Level: Four

Duration: 40 hours

Theory: 25 hours

Practical: 15 hours

Overview:

This unit offers senior apprentices a systematic review of skills and knowledge required to pass the Interprovincial 'Red Seal' 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 Red Seal Interprovincial certification and the features of the Interprovincial exam. As well, the apprentice will experience a practical application of building an in shop project clarification.

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: **Percent of Unit Mark (%)**

1. **Describe the significance, format and general content of Interprovincial (Red Seal) Examinations for the trade of lather (Interior Systems Mechanic).** **n/a**
   a. Scope and aims of Red Seal system; value of certifications
   b. Obligations of candidates for IP certification
      - Relevance of IP Examinations to current, accepted trade practices; industry-based national validation of test items
      - Supplemental Policy (retesting)
      - Confidentiality of examination content
   c. Multiple-choice format (four-option) item format, Red Seal/Apprenticeship Manitoba standards for acceptable test items
   d. Government materials relevant to the IP Examinations for apprentice Lather/ISMs
      - National Occupational Analysis (NOA); prescribed scope of the skills
      - NOA "Pie-chart" and its relationship to content distribution of IP
      - Manitoba Apprentice Portfolio, especially the NOA-based Practical

2. **Identify resources, strategies and other considerations for maximizing successful completion of written exams.** **n/a**
   a. Personal preparedness
      - Rest
      - Nutrition
      - Personal study regimen
      - Prior experience in test situations (e.g., Unit Tests)
   b. Self-assessment, consultation and personal study plan
      - Self-assessment of individual strengths/weaknesses in trade related skills and knowledge
      - Approved textbooks
      - Study groups

3.	**Review program content regarding occupational skills.**	**n/a**
4.	**Review program content regarding framing.**	**n/a**
5.	**Review program content regarding interior systems.**	**n/a**
6.	**Review program content regarding exterior systems.**	**n/a**
7.	**Review program content regarding practical project.**	**n/a**

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Apprenticeship Manitoba

Lather (Interior Systems Mechanic)

Unit: A6 Orientation 2: Job of Journeywork

Level: Four
Duration: 7 hours
Theory: 7 hours
Practical: 0 hours

Overview:

Level One, Unit A1 "Orientation I: Structure and Scope" gave an overview of the Lather (Interior Systems Mechanic) trade, the Apprenticeship Manitoba Program, and the apprenticeship training system.

This unit further examines the Welder trade with a review of the trade regulation, certification and the journeyperson's responsibility for trade teaching. As the certified trade expert, the journeyperson's role is to train, supervise and mentor apprentices in the workplace.

Unit content will vary at the discretion of the instructor and experience of the apprentices.

Objectives and Content: **Percent of Unit Mark (%)**

1. Describe the scope, substance, and significance of journey-level status. 15%

a. Historical background, including trainee experiences
- Origin, definition, and examples of journey-level status
- Obligations to employers, trade clients, and apprentices
- Concept of skills stewardship, and its rationale
- Customary responsibilities of journeyperson as workplace trainer/supervisor
- Overview development of formal systems for regulating/recognizing journey-level competence in designated apprenticeable trades
- Contributions of 'unticketed journeymen' and other informally-qualified Latherers to workplace trade-learning
- Achievements/limitations of informal systems for workplace training
- Trends (e.g., succession planning in the trades; recognition of credentials and prior learning; defined standards for on-the-job trades education and training)

b. Regulatory/legal dimensions of journey-level status in designated trades
- Rights and obligations re: Canada's Interprovincial 'Red Seal' program (Red Seal rationale, scope, and products, including the National Occupational Analysis [NOA], and Interprovincial examinations
- Manitoba provincial requirements [e.g., *Apprenticeship and Certifications Act; General Regulation*; the *Trade Regulation*; relevant policies of the Apprenticeship and Certifications Board]
- Trade-specific requirements re: Practical Training supervision and documentation; importance of quality assurance and broad-scope coverage of prescribed task-content; ratios, etc.

c. Other (as may be specified by instructor)

2. Compare/contrast role-options and responsibilities of the supervising journeyperson. 30%

a. Recognizing the variability of supervision assignments, situations, and roles
b. Source and specification of the supervision assignment
c. Formal vs. informal roles (e.g., mandated by an employer's succession plan)
d. Implicit vs. explicit standards and content: training goals are/are not codified; assessment measures are/are not used,
e. Accountability for results: subject/not subject to third-party notification; completion of supervision assignment itself is/is not assessed by third party; journeyperson is/is not required to prepare performance evaluation that could affect apprentice's employability or wage-rate, etc.
f. General vs. task- or job-specific supervision assignments: e.g., scope of expectations re: content of supervisory task(s)
g. Long-term vs. short-run supervision assignments – e.g., considerable latitude/little latitude for apprentice to learn from mistakes
h. 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
i. Typology of common supervisory role-options and what is implied by each:
   - Coach role: is often initiated by someone other than apprentice, 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
   - Managerial role(s): can shade over into hire/fire issues as lead-hand or site-boss
   - 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
j. Possibilities, perils, and likelihood of role-overlap in 'real-life' trade practice
k. Importance of clarifying all roles, expectations, and implications involved in accepting a supervision assignment
l. Role of Apprenticeship Training Coordinator (ATC), Apprenticeship Manitoba
m. Resources for developing skills and knowledge re: providing journey-level supervision
   - Books and journals (not always trade-specific)
   - Websites
   - Conversation with trade instructors, journeypersons, and peers
   - Workshops
n. Other (as may be specified by instructor

3. Describe/demonstrate common requirements re: providing journey-level supervision. 30%

a. Review content re: challenges/opportunities opportunities of Apprenticeship learning adapted to journey-level supervision assignments and a journey-level standpoint
   - Application of adult education concepts to trades teaching/learning (e.g., responsibilities and expectations of adult learners)
   - Practical significance of 'styles' of adult learning and teaching
   - Helping apprentices to integrate Technical Training (in school) and Practical Training (on-the-job) learning experiences
   - Providing help and guidance re: new tasks and skills
   - Providing help and guidance re: fixing mistakes
   - Learning/teaching "the ropes" – socialization of learner within a community of trade practice (e.g., how to borrow a tool, interrupt a journeyperson, 'recruit' an advisor)
   - Coverage/documentation of prescribed tasks and subtasks Lather (Interior Systems Mechanic) NOA, including responsibility re: logbook sign-off (where

applicable)
- Consultation with Apprenticeship Training Coordinator (ATC), Apprenticeship Manitoba
- Communicating with apprentices and employers about supervision assignments and assignment specifications, including the limits of the trainers' own responsibilities and competence (e.g., substance-abuse intervention)
- Benefits of maintaining a personal record of achievements, ideas, and needs as a workplace trainer

b. Individual reflection and guided group discussion re: personal experiences of workplace learning as an apprentice
- Identification of best and worst practices of supervising journeypersons
- Assessment of personal experiences (if any) to date in supervising, coaching, or guiding other people to learn or improve their skills (e.g., entry-level apprentices, members of athletic team, younger family members, etc.), and how this might compare/contrast with the journey-level support of apprenticeship learning
- Identification of workplace and other factors that can contribute to good and bad trades teaching/learning experiences
- Development of personal standards re: responsibility to share one's knowledge and skill with others in the workplace (e.g., use/misuse of humour, rigour, discretion, craft-pride, etc.)

c. Comparison/contrast of discussion results with current knowledge/resources re: workplace skills coaching methods as applicable to journey-level supervision assignments
- Qualities of a good workplace coach
- Components of workplace skills coaching
- Processes and recommended practices re: workplace coaching
- Troubleshooting problems re: supervision assignments

d. Other (as may be specified by instructor)

4. Complete Modules 1 to 3, *Workplace Coaching Skills* (Burnaby, BC: 1995), ISBN 1-55139-030-2. (or equivalent). 10%

a. Identifying purpose of the lesson
- Explaining the point of the lesson
- Role of the coach in specific coaching situation
- Other (specified by instructor)

b. Linking the lesson
- Learner needs
- Lesson sequence
- Focus on learner
- Selection/timing of coaching opportunities

c. Demonstration of skill/task to be learned
- Starting the coaching session
- Demonstration
- Hands-on trial
- Recap for learner

5. Complete Modules 4 to 6, *Workplace Coaching Skills* (or equivalent). 15%

a. Practice of skill/task to be learned
- Nature and importance of practice
- Setting up for learner practice
- Types of practice
- Recycling and reinforcing skill/task learning

a. Providing feedback to the learner
- Value of feedback
- Kinds of feedback
- Guidelines and tips

c. Assessment
   - Value of assessing learner progress
   - Assessing level of skill
   - Planning further steps toward skill/task mastery

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Apprenticeship Manitoba

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Unit: B4 Blueprint Reading and Specifications 3

Level: Four

Duration: 35 hours

Theory: 5 hours

Practical: 30 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills of blueprint reading and specifications. Topics will include: reviewing blueprint reading and specifications, special fire and sound controls and their construction, wall and ceiling designs, and recognizing typical and unusual job demands by referring to blueprints, drawings and specifications.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Review blueprint reading and specifications.	**35%**
2. Discuss special fire- and sound-controls and their construction. a. National Research Council b. Decibels c. Sound transmission class d. Flame spread e. Heat transmission f. Smoke controls	**18%**
3. Discuss wall and ceiling designs in regards to special fire and sound controls a. Non-combustible materials b. Treatment of wall cavities c. Sound bars and barriers d. Sealants	**17%**
4. Refer to blueprints, drawings and specifications for typical and unusual job demands, the co-ordination of work loads with other trades and various other concerns arising.	**30%**

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Apprenticeship Manitoba

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Unit: **C4 Trade Mathematics 4**

Level: Four

Duration: 42 hours

Theory: 30 hours

Practical: 12 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills required to perform construction-related mathematical operations.

Objectives and Content:

1.	**Estimate materials and supplies needed for various projects/jobs.**	**25%**
2.	**Calculate areas and material quantities from a commercial building blueprint.**	**25%**
3.	**Estimate with unit costs.**	**25%**
4.	**Practice calculating trade related problems on ratios and proportions.**	**25%**

a. Roof framing

b. Pitch
- Run
- Rise

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Apprenticeship Manitoba

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Unit: D4 Framing Exterior Walls and Panels

Level: Four

Duration: 35 hours

Theory: 9 hours

Practical: 26 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills for frame exterior walls and panels. Topics will include: types of manufactured panels, manufactured panel construction techniques, types of pre-manufactured panels and pre-manufactured panel installation techniques.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Discuss the types of manufactured panels.	**17%**
2. Describe manufactured panel construction techniques. a. Layout of framing b. Securing framing c. Placing and installing substrate d. Placing and securing exterior finish	**18%**
3. Discuss the types of pre-manufactured panels.	**17%**
4. Practice calculating trade related problems on ratios and proportions. a. Attaching hardware b. Securing panels to crane c. Hand signals to crane operator d. Placing and attaching pre-manufactured panels	**18%**
5. Construct framing for exterior walls and panels.	**30%**

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Apprenticeship Manitoba

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Unit: D6 Framing Roofs

Level: Four

Duration: 29 hours

Theory: 14 hours

Practical: 15 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills to frame roofs. Topics include: steel studs, load-bearing limits, building code requirements, roof erection techniques, and structural steel stud framing details.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Discuss the types of steel studs.	**7%**
2. Describe general load-bearing limits.	**14%**
3. Review building-code requirements specific to roofs.	**14%**
4. Describe roofs. a. Types b. Materials c. Characteristics d. Properties	**7%**
5. Describe roof-erection techniques. a. Cut and install track b. Studs c. Roof components d. Specified anchors and fasteners	**14%**
6. Discuss structural steel and framing details.	**14%**
7. Construct a load-bearing steel-stud roof and apply framing details.	**30%**

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Apprenticeship Manitoba

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Unit: F2 Lead Shielding

Level: Four

Duration: 9 hours

Theory: 9 hours

Practical: 0 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills to install lead shielding. Topics will include: purpose of lead shielding, lead installation techniques, lead baffles, radiation shielding, and radiation protective systems.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Discuss the purpose of lead shielding. a. Types b. Thickness c. X-ray purpose d. Sound purpose	**10%**
2. Describe lead-installation techniques. a. Lead-handling precautions b. Measuring c. Cutting d. Sealing X-ray conductive perforations in lead panels	**21%**
3. Discuss lead baffles. a. Layout b. Installation	**21%**
4. Explain radiation shielding. a. Units of radiation b. Perspective of risk c. Personnel monitoring d. Measure to minimize radiation exposure	**11%**
5. Discuss radiation protective systems. a. Lead protective-shielding • Framing and furring members • Fasteners • Adhesives • Accessories b. Framing and installation	**7%**

- Layout
- Corner details
- Wall intersections
- Base intersections

c. Testing (to ensure lead protective shielding provides full radiation protection for specified project)

6. Install lead shielding. **30%**

a. Safety
b. Tools and materials
c. Components
   - Studs
   - Shielding
   - Finish materials
   - Door frames
   - Window frames
d. Layout and framing
   - Basic walls
   - Corner details
   - Wall and ceiling intersections
   - Door placement and windows
e. Lead-application installation
   - Walls, outlets, openings, doors
   - Fastener shielding
   - Interior finishes
f. Inspection/testing

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Apprenticeship Manitoba

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Unit: G3 Rain-Screen Systems

Level: Four

Duration: 13 hours

Theory: 9 hours

Practical: 4 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills to install rain screen systems. Topics will include: purpose and principles of rain screen systems, installation techniques of rain screen systems and installation techniques of furring.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Describe the purpose and principles of rain screen systems.	**28%**
2. Discuss the installation techniques of rain screen systems.	**28%**
3. Discuss the installation techniques of furring.	**14%**
4. Demonstrate application techniques of rain screen systems. a. Cut flashing b. Install flashing c. Cut furring strips d. Install furring strips e. Install membrane material f. Install rain screen systems	**30%**

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