Apprenticeship and Industry Training

Lather – Interior Systems Mechanic

Curriculum Guide

017 (2022)

Alberta

Apprenticeship and Industry Training

Classification: Public

ALBERTA ADVANCED EDUCATION

Lather-interior systems mechanic: apprenticeship education program curriculum guide

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Lather-Interior Systems Mechanic
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Apprenticeship

Apprenticeship is post-secondary education with a difference. Apprenticeship begins with finding a sponsor. Sponsors guide apprentices, and support on-the-job learning through provision of mentorship. Approximately 80 per cent of an apprentice's time is spent on the job under the supervision of a certified journeyperson or qualified tradesperson. The other 20 per cent involves technical training provided at, or through, a post-secondary institution (PSI) – usually a college or technical institute.

To receive their post-secondary credential, apprentices must learn theory and skills, and they must pass examinations. Criteria for the program—including the content and delivery of technical training—are developed and updated by the Registrar.

The graduate of the Lather-Interior Systems Mechanic apprenticeship program is an individual who will be able to:

- know the characteristics and understand the actions and interactions of Lathing and Interior Systems Mechanic materials
- interpret plans and specifications and layout and develop projects accordingly
- calculate material quantities
- use hand tools and powered equipment in a proper and safe manner
- construct various types of walls and ceilings and apply exterior and interior trim of metal and other material
- relate to the work of other tradespeople in the building industry
- perform assigned tasks in accordance with quality and production standards required in industry.

Apprenticeship and Industry Training System

Alberta's apprenticeship programs are supported by industry stakeholders that ensures a highly skilled, internationally competitive workforce in the province. The Registrar establishes the educational standards and provides direction to the system supported by industry and the PSI's. The Ministry of Advanced Education provides the legislative framework and administrative support for the apprenticeship and industry training system.

Special thanks are offered to the following industry members who contributed to the development of the standard:

Mr. D. Wiebe	Edmonton
Mr. A. Sim	Riviere Qui Barre
Mr. J. Hesp	Edmonton
Mr. L. Lewandoski	Edmonton
Mr. B. Mallow	Calgary
Mr. K. Stanwood	Calgary
Mr. T. Van Dyk	Calgary
Mr. D. Millar	Edmonton

Alberta Government

Alberta Advanced Education works with industry, sponsor and employee organizations and technical training providers to:

- facilitate industry's development and maintenance of training and certification standards
- provide registration and counselling services to apprentices and sponsors
- coordinate technical training in collaboration with training providers
- certify apprentices and others who meet industry standards

Apprenticeship Safety

Safe working procedures and conditions, incident/injury prevention, and the preservation of health are of primary importance in apprenticeship programs in Alberta. These responsibilities are shared and require the joint efforts of government, sponsors, employees, apprentices and the public. Therefore, it is imperative that all parties are aware of circumstances that may lead to injury or harm.

Safe learning experiences and healthy environments can be created by controlling the variables and behaviours that may contribute to or cause an incident or injury. By practicing a safe and healthy attitude, everyone can enjoy the benefit of an incident and injury free environment.

Occupational Health and Safety

Persons engaged in, or supporting an individual in an experiential learning environment are often exposed to more worksite hazards than in other forms of traditional post-secondary education and therefore should be familiar with and apply the Occupational Health and Safety Act, Regulations and Code when dealing with personal safety and the special safety rules that apply to all daily tasks.

Occupational Health and Safety-OHS (a division of Alberta Labour and Immigration) conducts periodic inspections of workplaces to ensure that safety regulations for industry are being observed.

Additional information is available at www.alberta.ca/occupational-health-safety.aspx

Apprenticeship technical training is delivered by the PSI's throughout Alberta. The PSI's are committed to delivering the technical training component of Alberta apprenticeship programs in a safe, efficient and effective manner. All PSI's place a strong emphasis on safety that complements safe workplace practices towards the development of a culture of safety for all professions.

The PSI's work with industry and Alberta Advanced Education to enhance access and responsiveness to industry needs through the delivery of the technical training component of apprenticeship programs across the province. They develop curriculum from the curriculum guides established by the Registrar in consultation with the PSI's and industry and provide the technical training to apprentices.

The following PSI's deliver Lather-Interior Systems Mechanic apprenticeship technical training:

Northern Alberta Institute of Technology

Procedures for Recommending Revisions to the Curriculum Guide

Any concerned individual or group in the province of Alberta may make recommendations for change by writing to:

Registrar of Apprenticeship Programs
c/o Apprenticeship Delivery and Industry Support Services
Apprenticeship Delivery and Industry Support
Advanced Education
19th floor, Commerce Place
10155 102 Street NW
Edmonton AB T5J 4L5

It is requested that recommendations for change refer to specific areas and state references used.

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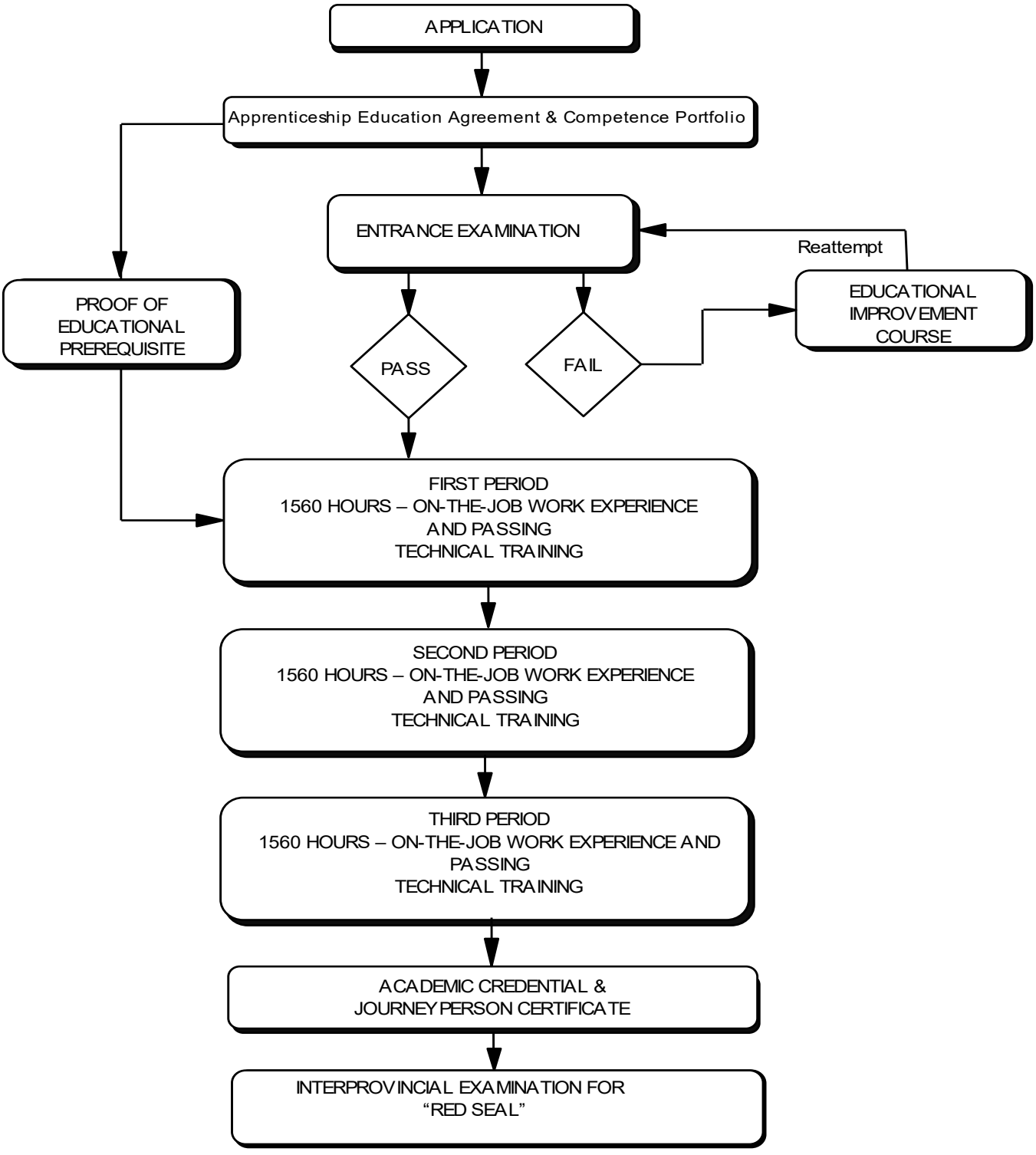
Apprenticeship Route toward Academic Credential



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Lather-Interior Systems Mechanic Training Profile
FIRST PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)

SECTION ONE

CODES, REGULATIONS AND GENERAL SAFETY — **6%**

A	B	C
Construction Safety 25%	Project Organization 25%	Study of Regulations 25%

D	E
Fire Prevention and Controls 6%	Introduction to WHMIS 19%

SECTION TWO

TOOLS, EQUIPMENT AND MATERIALS — **7%**

A	B	C
Hand and Power Tools 24%	Scaffolding 23%	Materials 18%

D
Explosive Actuated Tools 35%

SECTION THREE

WALLS — **19%**

A	B	C
Various Types and Specifications 4%	Materials and Erection 18%	Metal Framing 47%

D	E	F
Furring Systems on Existing Walls 9%	Preparations for Other Trades 9%	Application of Insulation In Walls and Ceilings 13%

SECTION FOUR

EXTERIOR STUCCO PREPARATION — **4%**

A	B
Sheathing and Building Paper 50%	Stucco Wire and Coatings 50%

SECTION FIVE

DRYWALL APPLICATIONS — **19%**

A	B	C
Application, Layout and Installation 39%	Taping 26%	Drywall Ceiling Systems 35%

SECTION SIX

COMPONENT CEILING SYSTEMS — **13%**

A	B
Component Ceilings 83%	Component Baffles 17%

SECTION SEVEN

AIR AND MOISTURE BARRIERS — **5%**

A	B	C
Application of Air and Moisture Barriers 50%	Barrier Failures 25%	Exterior Insulation Finish Systems (EIFS) 25%

SECTION EIGHT

BLUEPRINT READING — **15%**

A	B	C
Drawing Instruments and Techniques 22%	Freehand Sketch 22%	Drawing to Specifications 22%

D
Blueprint Interpretation 34%

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SECTION NINE	A	B	C
TRADE MATHEMATICS **12%**	Basic Applied Mathematics 43%	Trade Problems from Basic Plans and Specifications 43%	Metric Systems 14%

SECOND PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)

SECTION ONE	**A**	**B**	
FIRE RESISTIVE AND ACCOUSTICAL RATINGS **3%**	Fire and Sound Ratings 50%	Wall and Ceiling Designs 50%	
SECTION TWO	**A**	**B**	**C**
WIND/LOAD BEARING WALL AND FLOOR SYSTEMS **12%**	Wind Bearing Framing Systems 33%	Composite Metal Floor Systems and Load Bearing Walls 33%	Access Floor Systems 34%
SECTION THREE	**A**		
METAL LATH PARTITIONS, WALLS AND CEILINGS **6%**	Fabricating of Metal Lath Partitions, Walls and Ceilings 100%		
SECTION FOUR	**A**	**B**	
SHAFT WALL SYSTEMS **12%**	Shaft Wall Fabrication 43%	Plenum Barriers 57%	
SECTION FIVE	**A**	**B**	**C**
COMPONENT AND SPECIALTY CEILING SYSTEMS **17%**	Concealed Suspension Ceiling System 5%	Reveal Grid and Ceiling Tile System 30%	Metal Linear Ceiling Systems 15%
	D		
	Specialty Ceilings 50%		
SECTION SIX	**A**		
DEMOUNTABLE PARTITION SYSTEMS **8%**	Components and Installation 100%		
SECTION SEVEN	**A**	**B**	**C**
SPECIALIZED SYSTEMS **12%**	Pre-cast Plaster, Glass Fibre and Reinforced Gypsum 14%	Component Wall Treatment and Baffles 14%	Jigs and Templates 72%
SECTION EIGHT	**A**	**B**	**C**
EXTERIOR INSULATION FINISH SYSTEMS (EIFS) **10%**	Panelization 17%	On-Site Application 75%	Air and Moisture Barriers 8%
SECTION NINE	**A**	**B**	**C**
BLUEPRINT READING **15%**	Blueprints for Commercial Buildings 33%	Isolating the Lather – Interior Systems Mechanic Work 28%	Amplifying Drawings with Notes 11%

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		D	E	
		Freehand Pictorial Drawings 14%	Specified Shop Projects 14%	
SECTION TEN		A		
TRADE MATHEMATICS 5%	⇨	Trade Calculations 100%		

THIRD PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)

SECTION ONE		A	B	C
ADVANCED CEILING SYSTEMS 23%	⇨	Adjustments and Adaptations from Regular Layouts 11%	Component Ceilings 3%	Groined Drywall and Domed Metal Lath Ceiling 36%
		D	E	F
		Specialty Ceilings 18%	Development and Use Of Jigs and Templates 11%	Trim and Finishing Components 21%
SECTION TWO		A	B	C
RENOVATIONS, WALLS AND FIREPROOFING 13%	⇨	Demountable Partition Systems 33%	Fireproofing 33%	Renovations and Additions 34%
SECTION THREE		A	B	
SPECIALIZED ENVIRONMENTS 4%	⇨	Introduction to Specialized Environments 60%	Radiation Protective Systems 40%	
SECTION FOUR		A	B	C
BLUEPRINT READING 26%	⇨	Specifications 16%	Blueprints with Emphasis on Lather – ISM Role 32%	Working Drawings 35%
		D		
		Job Organization 17%		
SECTION FIVE		A	B	C
BUSINESS FUNDAMENTALS 17%	⇨	Documents and Forms 15%	Trade Math 44%	Workplace Coaching Skills 12%
		D		
		Interprovincial Standards 29%		
		A		
FINAL PERIOD PRACTICAL PROJECT 17%	⇨	Final Period Practical Examination 100%		

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FIRST PERIOD TECHNICAL TRAINING
LATHER-INTERIOR SYSTEMS MECHANIC TRADE
CURRICULUM GUIDE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE: ..... CODES, REGULATIONS AND GENERAL SAFETY 6%

A. Construction Safety 25%

Outcome: Demonstrate knowledge of codes, regulations and general safety.

1. Reference to the National Building Code and the Alberta Building Code.
2. Explain the function of Canadian Standards Association and the Underwriters Laboratories of Canada.
3. Identify and observe Occupational Health and Safety regulations as they pertain to the Lather - ISM trade.
4. Be familiar with procedures, application forms, calculations, etc. within the various Acts and Regulations:
   a) Income Tax
   b) Workers Compensation
   c) Holiday pay
   d) Employment Insurance.

B. Project Organization 25%

Outcome: Explain the roles and responsibilities within the industry.

1. Explain the role of the owner, architects and engineers.
2. Explain the role of the general contractor.
3. Discuss sub-trades and how Lather - Interior Systems Mechanic must work with each.
4. Explain the role of the Lather and Interior Systems Mechanic.
5. Explain the responsibilities of the sponsor, supervisor and employee.

C. Study of Regulations 25%

Outcome: Understand construction safety regulations.

1. Discuss first aid and regulations with reference to emergency procedures and obtaining assistance for an injured worker.
2. Describe the procedures for obtaining first aid certificate(s).
3. Outline the regulations for general accident prevention:
   a) general safety precautions
   b) housekeeping
   c) personal protective equipment
   d) clothing
   e) safety belts, lifelines, safety nets
   f) respiratory protective equipment.
4. Specify the construction safety regulations for:
   a) wooden construction ladders
   b) protection from falling materials
   c) material hoists
   d) scaffolds - general
   e) ramps, runaways and stairways
   f) rolling scaffold and self-propelled
   g) suspended and swing stage scaffolds
   h) perimeter guard rails
   i) power man lift
   j) asbestos abatement
   k) general electrical safety
   l) laser lights in construction.

D. Fire Prevention and Controls.....6%

Outcome: Explain fire prevention techniques.

1. Identify the classes of fires and the acceptable extinguishers.
2. Define the critical areas in construction.

E. Introduction to W.H.M.I.S. (Workplace Hazardous Materials Information System) 19%

Outcome: Ability to handle hazardous materials safely.

1. Define what a WHMIS label means and distinguish between supplier and workplace labels and other means of identification.
2. Explain what a Material Safety Data Sheet (MSDS) is, its purpose and limitations.
3. Describe the roles and responsibilities of sponsor, supplier and worker in the education of workers.

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SECTION TWO: .....TOOLS, EQUIPMENT AND MATERIALS 7%

A. Hand and Power Tools 24%

Outcome: Select, use and maintain hand and power tools.

1. Discuss tools with emphasis on names and working parts.
2. Demonstrate tool safety.
3. Discuss typical and occasional job applications.
4. Recognize the components, assembly, types, sizes and the care, maintenance and safe use of:
   a) measuring tools
   b) layout tools
   c) gypsum cutting tools
   d) metal cutting tools
   e) crimping and riveting tools
   f) spirit and hydro leveling tools
   g) boring tools
   h) bending and tying tools
   i) impact tools
   j) screw driving tools
   k) sharpening tools
   l) power extension cords and polarity plugs
   m) caulking tools
   n) laser instruments.

B. Scaffolding.....23%

Outcome: Erect, use and dismantle scaffolding.

1. Describe the typical and occasional job applications.
2. Discuss ladders.
3. Describe rolling and motorized scaffolds.
4. Describe the erection and dismantling of typical scaffolding used in industry.

C. Materials.....18%

Outcome: Select materials for use on the job site.

1. Describe the metal types and gauges.
2. Explain the composition of gypsum and its manufacturers.
3. Explain the acceptable temperatures for set-up of gypsum and other adhesives.
4. Describe the typical and special fasteners.
5. Discuss the common causes of breakage and damage.
6. Outline the housekeeping practices.
7. Explain point loading.

D. Explosive Actuated Tools 35%

Outcome: Use and maintain powder, gas and pneumatic activated tools.

1. Describe low velocity tools, how they operate and the different types of fasteners and charges.

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2. Demonstrate operation and explain the relationship between pins, charges and materials.
3. Discuss the hidden features of fastening surfaces.
4. Discuss servicing and storage of tools and supplies, and the disposal of misfired charges.
5. Demonstrate the pre-firing routine and the actual firing of a low velocity tool.

SECTION THREE: .....WALLS.....19%

A. Various Types and Specifications 4%

Outcome: Identify the different walls used in the trade.

1. Differentiate between bearing, non-bearing, prefabricated and shaft walls.

B. Materials and Erection.....18%

Outcome: Select and install materials.

1. Identify the use of floor and ceiling channels.
2. Choose stud types and spacing.
3. Identify the layout and aligning methods.
4. Describe securing systems.
5. Describe bracing procedures.
6. Explain how to establish wall openings.
7. Install backing systems.

C. Metal Framing.....47%

Outcome: Layout and install metal framing.

1. Demonstrate the following:
    a) floor layout
    b) floor and ceiling runner
    c) plumbing and aligning procedures
    d) various metal stud types - load bearing and non-load bearing
    e) bracing procedures
    f) intersecting walls
    g) window, door and access openings
    h) installation of frames
    i) resilient sound bars.

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D. Furring Systems on Existing Walls.....9%

Outcome: Install a furring system.

1. Describe the correct spacing.
2. Describe shimming and securing procedures.
3. Describe the securing systems required.
4. Describe furring procedures on concrete and masonry walls.

E. Preparations for Other Trades.....9%

Outcome: Install backing and recessed openings for other trades.

1. Describe the installation of backing and brackets for:
   a) electrical fixtures
   b) plumbing fixtures
   c) wood or metal cabinets.
2. Prepare opening for fire hose cabinets and recessed fixtures.

F. Application or Installation of Insulation in Walls and Ceilings 13%

Outcome: Select and install insulation.

1. Explain the types and thickness of insulation.
2. Explain and install vapour barriers.
3. Identify how to secure or fasten insulation.
4. Explain heat transfer and heat loss.
5. Comprehend attenuation and absorption.
6. Install insulation:
   a) batt type
   b) rigid type.

SECTION FOUR: .....EXTERIOR STUCCO PREPARATION.....4%

A. Sheathing and Building Paper..... 50%

Outcome: Select and apply sheathing and building paper.

1. Identify wood sheathing and application.
2. Identify exterior gypsum and application.
3. Select and use fasteners.
4. Differentiate between:
   a) asphalt impregnated
   b) air barrier paper.
5. Select and use building paper.
6. Select and use flashing.

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B. Stucco Wire and Coatings 50%

Outcome: Select and apply stucco wire and coatings.

1. Describe standard welded wire and standard welded wire paper backed stucco wire.
2. Select and use stucco wire.
3. Differentiate among:
   a) scratch
   b) brown
   c) finish.
4. Discuss finish stucco for:
   a) stone dash
   b) decorative uses.

SECTION FIVE: ..... DRYWALL APPLICATIONS 19%

A. Application, Layout and Installation 39%

Outcome: Select and install drywall systems.

1. Discuss the use of single layer drywall:
   a) apply single layer gypsum
   b) identify the location and spacing for nails and screws.
2. Explain standard lamination:
   a) apply standard lamination gypsum
   b) identify the location and spacing for nails and screws
   c) prepare and apply adhesives.
3. Specify where to use nails, screws, adhesives, etc.
4. Properly make dimension selection (thickness and length).
5. Describe patterns or sequence of joints.
6. Measure and cut to size.
7. Locate and cut out openings and outlets.
8. Describe how and where to apply backing board.

B. Taping 26%

Outcome: Select and apply drywall tape and taping compounds.

1. Select different types of joint compounds and trims.
2. Demonstrate the application of joint compounds and trims.
3. Identify and apply different types of tapes
4. Outline and demonstrate the various levels of finish.
5. Knowledge of sanding methods and types of sanding papers and equipment.

C. Drywall-Ceiling Systems 35%

Outcome: Select and install drywall-ceiling systems.

1. Build projects that include the use of inserts, hangers, eye pins, nails, screws, clips and bolts.
2. Select and install carrying and secondary channels.

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3. Establish elevations with laser, hydro levels (including reservoir type).
4. Outline and demonstrate bending and tying techniques.
5. Develop and install bracing systems.
6. Describe how to lift and secure heavy sheets.
7. Describe the material thickness for various joists, truss and channel spacing.
8. Bend and form channels.
9. Layout and fabricate openings to receive:
   a) electrical fixtures
   b) access panels.
10. Layout and fabricate:
   a) vertical drops and returns
   b) false beams.

SECTION SIX: ..... COMPONENT CEILING SYSTEMS 13%

A. Component Ceilings 83%

Outcome: Select and install component ceiling systems.

1. Describe ceiling board and tile, with reference to:
   a) composition types
   b) edge details
   c) physical properties - noise reduction, coefficiency and sound transmission class.
2. State the classifications of the Underwriters Laboratories of Canada:
   a) fire hazard
   b) fire resistive.
3. Explain suspension systems with exposed grid.
4. Describe cement-up applications and prepare cement-up with:
   a) layout
   b) technique for adhesion application.
5. Install an exposed modular grid with:
   a) layout
   b) vertical ceiling drops and returns
   c) open peripheral details.
6. Discuss and determine fire resistive requirements for fixture enclosures and duct openings.

B. Component Baffles 17%

Outcome: Select and install baffle systems.

1. Install steel studs along with the insulation, caulking and gypsum board.

SECTION SEVEN: ..... AIR AND MOISTURE BARRIERS 5%

A. Application of Air and Moisture Barriers..... 50%

Outcome: Install air and moisture barriers.

1. List and describe principles and fundamentals.

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2. Describe types of air and moisture barriers including:
    a) conventional polyethylene barrier
    b) self-adhesive modified
    c) asphalt sheet - peel and stick
    d) torch-on.
3. Describe tools and equipment used in preparation and application.
4. Demonstrate application procedure including:
    a) conventional polyethylene
    b) self-adhesive modified asphalt sheet - peel & stick.

B. Barrier Failures 25%

Outcome: Recognize defective and/or improper applications.

1. Describe softening point of bitumen.
2. Describe the effect of overheating barriers.
3. List and describe compatibility of material.

C. Exterior Insulation Finish Systems (EIFS) 25%

Outcome: Identify and layout EIFS systems.

1. Describe panelization and installation procedures.
2. Describe on-site fabrication.
3. Demonstrate the ability to layout projects.
4. List and describe exterior sheathing and fasteners.
5. Explain purpose of flashing.
6. Install insulation board to sheathing with adhesives and/or mechanical fasteners.
7. Demonstrate the ability to embed reinforcing mesh to insulation board.

SECTION EIGHT: ..... BLUEPRINT READING 15%

A. Drawing Instruments and Techniques 22%

Outcome: Select and use drawing instruments and techniques.

1. Explain object, extension, centre, hidden and break lines.
2. Use drawing instruments to draw lines.
3. Use drawing instruments to draw numbers and upper case lettering.

B. Freehand Sketch 22%

Outcome: Draw a freehand sketch.

1. Make simple drawings of trade symbols.
2. Make basic drawings as an aid to understanding glossaries.

C. Drawing to Specifications 22%

Outcome: Interpret drawings to construct details.

1. Make basic orthographic and isometric drawings.

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2. Draw plans and elevation views for projects.

D. Blueprint Interpretation 34%

Outcome: Interpret blueprints to construct a project.

1. Read plan, elevation and section views.
2. Isolate Lather - Interior System Mechanic items on plans.
3. Understand the scope and responsibilities of other trades.
4. Draw reflected ceiling plans.

SECTION NINE: ..... TRADE MATHEMATICS 12%

A. Basic Applied Mathematics 43%

Outcome: Perform calculations on the jobsite.

1. Do mathematical problems in addition, multiplication, division and subtraction.
2. Calculate common and decimal fractions.
3. Calculate linear, area and volume measurements.
4. Calculate ratios and proportions.
5. Calculate percentages.

B. Trade Problems From Basic Plans and Specifications 43%

Outcome: Estimate material quantities.

1. Calculate linear footage of perimeters, partition layouts, etc. in regular and irregular outlines.
2. Calculate studs, channels, fasteners, bracing, rough openings, etc. in wall layouts of various types and spacing.
3. Calculate areas of rectangular, square and triangular shapes.
4. Determine numbers of gypsum sheets, bundles of gypsum and metal lath, etc. from various areas.
5. Calculate pounds, lots and areas of fasteners.
6. Show extra cutting and waste through poor or improper selection of materials on site.
7. Convert stated elevations to working feet and inches, squaring by 3-4-5 system, etc.
8. Calculate layout, locations and quantities of hangers, inserts, eye pins, carrying and secondary channels, bracing, etc. for typical suspended ceilings.

C. Metric Systems 14%

Outcome: Use and convert metric measurements.

1. Convert various units of measure.

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SECOND PERIOD TECHNICAL TRAINING
LATHER-INTERIOR SYSTEMS MECHANIC TRADE
CURRICULUM GUIDE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....FIRE RESISTIVE AND ACCOUSTICAL RATINGS..... 3%

A. Fire and Sound Ratings 50%

Outcome: Interpret ratings to select appropriate materials and methods for assemblies.

1. Discuss the National Research Council.
2. Explain decibels.
3. Comprehend sound transmission.
4. Comprehend flame spread.
5. Comprehend heat transmission.
6. Comprehend smoke controls.

B. Wall and Ceiling Designs..... 50%

Outcome: Interpret designs to select appropriate materials and methods for assemblies.

1. Recognize non-combustible materials used.
2. Describe the treatment of wall cavities.
3. Discuss sound bars and barriers.
4. Discuss sealants, etc.
5. Recognize probable causes of smoke and sound leakage through minute cracks, access openings, etc.

SECTION TWO:.....WIND/LOAD BEARING WALL AND FLOOR SYSTEMS..... 12%

A. Wind Bearing Framing Systems 33%

Outcome: Install wind bearing walls and associated framing.

1. Layout and install load bearing framing.
2. Install framing at openings.
3. Install bracing and channels with clips.
4. Install slip track.
5. Install fasteners.

B. Composite Metal Floor Systems, Load Bearing Walls and Roofs..... 33%

Outcome: Identify and recognize construction methods.

1. Install composite metal floor panels or framing system with fasteners.
2. Install end closures, perimeter trims and straps.
3. Knowledge of shoring and its application.
4. Knowledge of load bearing roof systems.

C. Access Floor Systems 34%

Outcome: Identify and recognize construction methods.

1. Describe each of the following types:
   a) rigid core
   b) free standing
   c) particle core panels
   d) steel panels
   e) pedestal
   f) stringers.
2. Describe the installation of:
   a) ramps
   b) handrails
   c) steps
   d) cutting methods.
3. Install steel panel in 1800/600 rigid grid system - referring to:
   a) layout
   b) pedestals and stringers
   c) field panels
   d) peripheral cut panels.

SECTION THREE: ..... METAL LATH PARTITIONS, WALLS AND CEILINGS..... 6%

A. Fabricating of Metal Lath Partitions, Walls and Ceilings 100%

Outcome: Install metal lath.

1. Explain the make-up of studded walls.
2. Identify where metal lath is specified.
3. Give the advantages and limitations.
4. Describe and install ceiling and floor runners.
5. Describe plumbing and aligning procedures.
6. Describe vertical members.
7. Describe metal lath.
8. Describe bead stops and expansion joints.
9. Install:
   a) control joints
   b) expansion joints

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c) corner beads
d) plaster stops.

SECTION FOUR: ..... SHAFT WALL SYSTEMS 12%

A. Shaft Wall Fabrication 43%

Outcome: Install a shaft wall system.

1. Discuss the fire rating value.
2. Plumb and align system.
3. Layout shaft wall system.
4. Describe openings and frames.
5. Install coreboard to predetermined specifications.
6. Install finish layer as specified.

B. Plenum Barriers 57%

Outcome: Identify and construct plenum barriers.

1. Describe types of plenum barriers.
2. Install double layered gypsum board.
3. Install fibrous rigid insulation.
4. Install metal lath/security mesh.

SECTION FIVE: .....COMPONENT CEILING SYSTEMS 17%

A. Concealed Suspension Ceiling System 5%

Outcome: Select components of and install a concealed suspension ceiling system.

1. Describe concealed suspension systems including:
   a) T
   b) metal pans.

B. Reveal Grid and Ceiling Tile Systems 30%

Outcome: Select components of and install a reveal grid and ceiling tile system.

1. 1. Describe exposed reveal systems with:
   a) exposed T, reveal edge ceiling board
   b) reveal grid, reveal edge ceiling board
   c) differences between various grid systems and profiles.
2. Layout system in accordance with peripheral details.
3. Install grid and ceiling board.
4. Construct vertical ceiling drops and slope returns.
5. Explain interfacing with electrical and mechanical.

Classification: Public

C. Metal Linear Ceiling Systems 15%

Outcome: Select and install metal linear systems.

1. Describe and construct metal linear suspension systems and beams.
2. Describe and use steel and plastic filler strips.
3. Describe the use of insulation pads.
4. Discuss and layout:
   a) hangers
   b) interfacing with electrical and mechanical
   c) peripheral detail.
5. Demonstrate cutting methods of:
   a) power mitre saws
   b) metal cutting hand tools.
6. Describe vertical ceiling returns.
7. Describe framing and furring of wall surfaces.
8. Explain the differences between interior and exterior applications.

D. Specialty Ceilings 50%

Outcome: Select and install specialty-ceiling systems.

1. Describe various types of specialty ceilings (i.e. Axiom, Compasso, Curvatura etc.).
2. Explain reflective finishes, with reference to:
   a) cutting
   b) handling and storage.
3. Describe and install curved ceilings, with reference to:
   a) sub-framing
   b) templates and jigs.
4. Discuss and install angular ceilings, with reference to:
   a) layout
   b) suspension system framing.
5. Discuss and locate penetrations for:
   a) interfacing with electrical
   b) interfacing with mechanical.

SECTION SIX: ..... DEMOUNTABLE PARTITION SYSTEMS 8%

A. Components 100%

Outcome: Select and install demountable partition systems.

1. Define and use progressive systems and components.
   a) Discuss and use battenless referring to framing, patent fasteners, board and trimming material.
2. Define and use non-progressive systems and components.
   a) Discuss and use battenless and refer to framing, patent fasteners, board and trimming materials.

Classification: Public

b) Discuss and use batten referring to framing, board and trimming materials.

3. Recognize the physical properties with emphasis on:
   a) sound transmission, class and gasketing
   b) fire resistive applications.
4. Describe and install the following:
   a) ceiling track details
   b) steel and aluminum door frames
   c) steel and aluminum glazed frames
   d) corners
   e) terminations
   f) intersections
   g) vinyl and fabric panels
   h) base details
   i) components systems differences.

SECTION SEVEN: ..... SPECIALIZED SYSTEMS..... 12%

A. Precast Plaster, Glass Fiber and Reinforced Gypsum 14%

Outcome: Install precast plaster systems.

1. State the physical properties.
2. Discuss the delivery, storage and handling.
3. Discuss on-site installation.
4. Explain tolerances. (erected units)
5. Describe the methods for patching and cleaning.
6. Describe procedures for caulking precast plaster.
7. Describe procedures for finishing precast plaster.
8. Use correct installation techniques for:
   a) columns
   b) coffers
   c) cornices and valances.

B. Component Wall Treatment and Baffles 14%

Outcome: Install component wall treatment and baffle systems.

1. Discuss the following types and usage of:
   a) wall panels
   b) ceiling panels
   c) baffles and screens
   d) special panels.
2. Explain the typical layout and installation:
   a) layout
   b) elevations
   c) mounting.
3. Fasten component baffles to existing ceiling systems and structures.

Classification: Public

C. Jigs and Templates 72%

Outcome: Develop and use jigs and templates.

1. Explain the purpose, materials and design when used for:
   a) beam
   b) columns
   c) pilasters
   d) soffits
   e) coves, curved surfaces
   f) temporary and reusable types.
2. Develop jigs and templates for:
   a) beams
   b) soffits
   c) columns
   d) pilasters
   e) coves, curved surfaces.

SECTION EIGHT: ..... EXTERIOR INSULATION FINISH SYSTEMS (EIFS) 10%

A. Panelization 17%

Outcome: Fabricate and install pre-manufactured panels.

1. Describe panelization and installation procedures.
2. Describe on-site fabrication.

B. On-site Application 75%

Outcome: Select and install EIFS systems.

1. Develop the layout.
2. Install exterior sheathing and fasteners.
3. Explain purpose of flashing.
4. Install insulation board to sheathing with adhesives and/or mechanical fasteners.
5. Embed reinforcing mesh to insulation board.
6. Apply finish coat referencing thickness, type of finish and colours available.

C. Air and Moisture Barriers 8%

Outcome: Install air and moisture barriers.

1. List and describe principles and fundamentals.
2. Describe types of air and moisture barriers including:
   a) conventional polyethylene barrier
   b) self-adhesive modified
   c) asphalt sheet - peel and stick
   d) torch-on.
3. Describe tools and equipment used in preparation and application.

Classification: Public

4. Demonstrate application procedure including:
    a) conventional polyethylene
    b) self-adhesive modified asphalt sheet - peel & stick.

SECTION NINE: ..... BLUEPRINT READING 15%

A. Blueprints for Commercial Buildings 33%

Outcome: Interpret a complete set of blueprints (working drawings) to construct a project.

1. Read and interpret:
    a) site plans
    b) structural plans
    c) mechanical plans
    d) architectural plans
    e) foundation plans
    f) electrical plans
    g) shop drawings.

B. Isolating the Lather - Interior Systems Mechanic Work 28%

Outcome: Determine the scope of work from a blueprint (working drawing).

1. Read and interpret:
    a) specifications
    b) plan views and notes
    c) room finish schedules
    d) section and detail views
    e) elevations
    f) reflected ceiling plans.

C. Amplifying Drawings with Notes..... 11%

Outcome: Add detail notes to drawings.

1. Amplify drawings with notes.

D. Freehand Pictorial Drawings 14%

Outcome: Draw a detailed freehand sketch.

1. Draw quick freehand pictorial drawings for clarification of details and notes.
    a) chases
    b) curtain walls
    c) anchors
    d) baffles
    e) lintels
    f) corbels, haunches.

E. Specified Shop Projects 14%

Outcome: Produce a working drawing to build a class project.

1. Draw blueprints for shop projects.

Classification: Public

SECTION TEN: ..... TRADE MATHEMATICS..... 5%

A. Trade Calculations 100%

Outcome: Layout a project and calculate material quantities required.

1. Calculate problems dealing with layouts, material sizes and quantities for false beams, soffits, etc.
2. Calculate layout patterns, material, types and quantities for:
   a) control joints
   b) expansion joints
   c) patented ceilings
   d) stepped ceilings
   e) fire rated walls
   f) sound rated walls.
3. Calculate layout and material quantities for circular and elliptical project:
   a) domed ceilings
   b) groined ceilings
   c) arches
   d) angles
   e) curves.

Classification: Public

THIRD PERIOD TECHNICAL TRAINING
LATHER-INTERIOR SYSTEMS MECHANIC TRADE
CURRICULUM GUIDE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:..... ADVANCED CEILING SYSTEMS 23%

A. Adjustments and Adaptations from Regular Layouts 11%

Outcome: Adapt methods to compensate for irregular jobsite conditions.

1. Identify adjustments and adaptations for:
    a) mechanical concealment
    b) vertical steps
    c) sloping and curved surfaces
    d) extra securing and reinforcing for special loads
    e) valences, recesses for electric fixtures
    f) access openings, sky lights, false beams, chases, etc.

B. Component Ceilings 3%

Outcome: Identify and install coffered ceilings.

1. Explain the installation of integrated coffered ceilings at:
    a) columns
    b) drywall peripheral suspended ceilings.

C. Groined Drywall and Domed Metal Lath Ceiling 36%

Outcome: Install groined drywall and domed metal lath ceilings.

1. Layout curves to specific measurements.
2. Secure metal and/or gypsum base or finish materials.
3. Explain scaffold systems.
4. Establish elevations, levels, radii and diameters.
5. Bend, form and secure channels.
6. Install beads, casings, etc.

D. Specialty Ceilings 18%

Outcome: Identify and install specialty ceilings.

1. Identify and install a specialty ceiling.

E. Development and Use of Jigs and Templates 11%

Outcome: Develop and use complex jigs and templates.

1. Develop and use the following jigs and templates:
    a) rectangular
    b) curved

c) circular
d) irregular.

F. Trim and Finishing Components 21%

Outcome: Select and install trims.

1. Apply trim and finishing components to curved, circular and irregular surfaces:
   a) beads
   b) perimeter moulds
   c) casings
   d) stops
   e) expansion and control joints.

SECTION TWO: ..... RENOVATIONS, WALLS AND FIREPROOFING 13%

A. Demountable Partition Systems 33%

Outcome: Identify and install advanced pre-manufactured wall systems.

1. Describe a cornice height partition and refer to:
   a) framing
   b) bracing
   c) door and glazing header details.
2. Describe curved radii corner details.
3. Identify the following types:
   a) non-progressive flush batten
   b) non-progressive flush batten with recessed base and head.
4. Describe the following components:
   a) panel
   b) honeycomb core
   c) panel frame
   d) panel spline
   e) drywall membrane
   f) glazing units
   g) door units.

B. Fireproofing 33%

Outcome: Recognize, comprehend, and install specified fireproofing systems.

1. Reference to ULC (Underwriters Laboratory of Canada) or other code requirements.
2. Explain the role in fabricating and preparing for gypsum coverings for structural steel.

C. Renovations and Additions 34%

Outcome: Identify, comprehend, and deal with unique situations.

1. Recognize asbestos and abatement methods.
2. Describe existing services, cautions and disconnections.
3. Describe protection of existing floor, cabinets, etc.
4. Describe the removal of existing material and housekeeping.

Classification: Public

5. Explain the layout and connection to existing walls.
6. Explain temporary shores, bracing, hoarding, etc.
7. Recognize existing site conditions and jobs procedure in stages.

SECTION THREE: ..... SPECIALIZED ENVIRONMENTS..... 4%

A. Introduction to Specialized Environments 60%

Outcome: Recognize hazards associated with specialized environments.

1. Define units of radiation.
2. Give an introduction to biological effects and somatic effects, with reference to:
   a) effects on skin
   b) effects of sex cell irradiation
   c) effects upon the eye
   d) effects upon the blood
   e) effects upon the body as a whole.
3. Explain the genetic effects, with reference to:
   a) mutations
   b) doubling dose.
4. Discuss the sources of radiation exposure:
   a) leakage
   b) primary
   c) scatter.
5. Show a perspective of risk.
6. Explain personnel monitoring.
7. Use measures to minimize radiation exposure.
8. Discuss regulations and protection recommendations.

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B. Radiation Protective Systems 40%

Outcome: Recognize and comprehend types of radiation shielding to integrate the job process.

1. Describe the following components:
   a) lead protective shielding
   b) framing and furring members
   c) fasteners
   d) adhesives
   e) accessories.
2. Discuss framing and installation for:
   a) layout
   b) corner details
   c) wall intersections
   d) ceiling intersections
   e) base intersections
   f) openings - door, window, transfer cabinet.
3. Explain testing to ensure lead protective shielding provides full radiation protection for the specified project.

SECTION FOUR: ..... BLUEPRINT READING 26%

A. Specifications 16%

Outcome: Interpret specifications in order to determine the scope of work.

1. Study of a typical set of specifications, their scope and the determination of ambiguous or arbitrary sections.

B. Blueprints with Emphasis on Lather - Interior Systems Mechanic Role 32%

Outcome: Interpret and use a complete set of blueprints (working drawings) to complete a project.

1. Adjust from small scale plan views to large scale details.
2. Draw quick pictorial drawings in freehand for clarification.
3. Make calculations for assigned problem solving arising from blueprint study.
4. Recognize change orders, addendums, etc.

C. Working Drawings 35%

Outcome: Prepare working drawings to assist in layout and construction of special items.

1. Prepare working drawings for special detail items:
   a) domed or groined ceilings
   b) ceilings that incorporate recesses, troughs, steps, etc.

D. Job Organization 17%

Outcome: Use basic estimating and job coordination skills to manage daily job flow.

1. Refer to blueprints, drawings and specifications for typical and unusual job demands, the coordination of work loads with other trades and various other concerns arising.
2. Calculate areas and material quantities from a building blueprint.

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SECTION FIVE: .....BUSINESS FUNDAMENTALS..... 17%

A. Documents and Forms..... 15%

Outcome: Prepare/comprehend documentation pertaining to projects.

1. Prepare or accept typical documents, forms, etc. including:
   a) delivery slips
   b) time sheets
   c) expense accounts
   d) business letters
   e) injury reports
   f) purchase orders, etc.

B. Trade Math 44%

Outcome: Make calculations from specifications or plans.

1. Make calculations from specifications or plans that include:
   a) screens and hoarding
   b) removal of old work
   c) temporary shoring
   d) new material
   e) reusable's
   f) scaffolding
   g) housekeeping
   h) off-site preparations
   i) penalty clauses.
2. Estimating with unit costs.

C. Workplace Coaching Skills..... 12%

Outcome: Use coaching skills when training an apprentice.

1. Describe the process for coaching an apprentice.

D. Interprovincial Standards 29%

Outcome: Use Red Seal products to challenge an Interprovincial examination.

1. Identify Red Seal products used to develop Interprovincial examinations.
2. Identify Red Seal products to prepare for an Interprovincial examination.

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Apprenticeship and Industry Training

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