Apprenticeship Manitoba

Manitoba

Cabinetmaker
Level 1

12-2024

Apprenticeship Manitoba

Cabinetmaker

Unit: A1 Learning About Work

Level: One

Duration: 7 hours

Theory: 7 hours

Practical: 0 hours

Overview:

A sign that an apprentice has become competent in a task or technique is to be asked to share this knowledge. Worksite skills-exchange has long been fundamental to trade-learning. Even trade veterans rely on peers to refine their knowledge and skill. The opportunity to benefit from this process, however, is shaped by complex factors that include worksite 'politics' and job deadlines. As adult trade-learners, apprentices at all levels of training must use their observational, listening, and interpersonal skills to benefit from the journeyperson's knowledge and experience. This requires understanding the trade's dynamics, as well as the roles and responsibilities which determine work-life.

This unit profiles the trade's structure and scope as determined by The Apprenticeship and Certification Act, Apprenticeship and Certification Board, Sector Committees, and Industry Working Groups using the occupational standards from which the technical training is derived. This unit also includes short- and long-term career progression and social competencies. This includes information about major areas of working knowledge, activities and interactions at work, and expansive and restrictive workplaces, stressing their application to apprenticeship on-the-job training.

A sound grasp of the roles, workplace relationships, and possibilities introduced in this unit are part of 'learning to learn' in Manitoba's apprenticeship system. Senior apprentices are later offered information about the transfer of knowledge and skills in this system. Please refer to unit Journeyperson Trainer which explores the central and time-honoured foundation of trades journeywork.

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 structure and scope of the Cabinetmaker trade. **n/a**

a. The Apprenticeship and Certification Act
   - Apprenticeship and Certification Board
   - Sector Committees and Industry Working Groups (IWG)
   - General regulation, and specific trade regulations/by-laws
   - Policies regarding attendance, evaluation procedures, conduct, and progression requirements (Apprenticeship Manitoba, training provider)

b. Uses of the Red Seal Occupational Standard (RSOS)
   - Apprenticeship Manitoba technical training standards
   - On-the-job report of hours
   - Examinations (unit tests, final certification examinations)

c. Opportunities and future career options

- Generalists and specialists. The move toward specialization is well known to modern tradespeople. Some prefer to specialize and others want to do it all. Supervisory positions require a broad scope.
- Lead hands and other immediate supervisors. Apprentices need to know how to become a lead-hand as much as they need to know the benefits and pit-falls of leadership between management, journeypersons, tradespersons, and other workers.
- Geographic mobility. What does it mean to a tradesperson to have to travel to find work? Are there more opportunities if they do? What are they? What are the drawbacks to being away from home for several weeks at a time?
- Job hierarchies and innovations. What trade specific special training opportunities are available in the trade? Is there travel involved? How do these opportunities affect work assignments and career progression?

2. Describe two levels of workplace competency. **n/a**

a. Job competencies related to workplace culture
   - Knowledge of workplace equipment and materials
   - Skills and techniques

b. Social competencies related to workplace culture
   - Language of work
   - Workplace belief systems
   - Rules and meanings
   - Equity, diversity, and inclusion in the workplace

3. Describe accommodation for apprentices with accessibility requirements. **n/a**

a. Awareness of the *Accessibility for Manitobans Act*
   - Customer service accessibility standard
   - Employment accessibility standard
   - Information and communications accessibility standard
   - Built environment
   - Transportation

b. Technical training
   - Requirements
   - Roles and responsibilities
   - Services and information required by persons with accessibility requirements

c. On-the-job
   - Requirements
   - Roles and responsibilities
   - Services and information required by persons with accessibility requirements

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Apprenticeship Manitoba

Cabinetmaker

Unit: A2 Trade Safety Awareness

Level: One
Duration: 7 hours
Theory: 7 Hours
Practical: 0 Hours

Overview:

Safe working conditions, injury prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers, supervisors, and workers. It is imperative to be familiar and apply the Manitoba Workplace Safety and Health Act and Regulations. Safety education is an integral part of apprenticeship training both in school and on-the-job. This unit is an overview of occupational safety and health best practices in Manitoba and covers Personal Protective Equipment, the Workplace Hazardous Materials Information System, and Safe Work Procedures. The unit also describes injury prevention and response. Finally, the unit reinforces these best practices by navigating the SAFE Work Manitoba website through each objective to apply Manitoba's most current safety and health standards. Additional trade safety awareness related resources are located on the Apprenticeship Manitoba website link below. Trade specific hazards and safe work practices are supplemented and delivered in-context within technical training units.

- **SAFE Work Manitoba website:** https://www.safemanitoba.com/
- **Safety resources:** https://www.gov.mb.ca/aesi/apprenticeship/generalinfo/instructoreducators.html

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. Define and describe Manitoba safety and health requirements.	**n/a**

a. Overview of the *Workplace Safety and Health Act and Regulations*
   - Rights and responsibilities of workers under the *Act*
   - Rights and responsibilities of supervisors under the *Act*
   - Rights and responsibilities of employers under the *Act*

b. Public agencies
   - Workplace Safety and Health (Enforcement)
   - SAFE Work Manitoba (Prevention)
   - Other

c. Codes of practice, guidelines, policies and standards (differences)

d. Worker rights
   - Right to know, participate and refuse
   - Protection from reprisal

e. Workplace safety and health program (worker's involvement)
   - Workplace safety and health committee
   - Participation in investigation and inspection process

2. Identify and describe personal protective equipment (PPE) requirements and standards in the workplace. **n/a**

a. Employer, supervisor and worker responsibilities
b. Hierarchy of control measures
c. Personal protective equipment (PPE)
   - Eye and face protection
   - Hearing protection
   - Foot, head, hand and skin protection
   - Respiratory protection
   - Protective clothing (including Hi-Visibility/Hi-Vis)
   - Fall protection (trade specific)

3. Identify and describe the Workplace Hazardous Material Information System (WHMIS) and procedures. **n/a**

a. Hazard identification
b. Product labels, symbols and classification
   - Supplier
   - Workplace
c. Safety Data Sheets (SDS)
d. Chemical and biological hazards
   - Emergency washing
   - Transportation of dangerous goods
   - Storage and handling

4. Identify and describe Safe Work Procedures (SWP). **n/a**

a. Hazard identification
b. Uncontrolled risk
c. SWP development

5. Identify and describe injury prevention.

a. Hazard recognition, evaluation, and control (SAFE acronym)
b. Occupational disease and illness
c. Musculoskeletal
   - Ergonomics
d. Psychological health and safety
   - Harassment and violence
   - Working alone
e. Young workers
f. Physical hazards
g. Chemical and biological hazards and exposures
   - Dust and fibres
   - Fumes, aerosols, gases and vapours
h. Confined space entry
i. Electrical safety
   - Lockout/tagout procedures
j. Fire types, fire extinguisher classifications and applications

6. Identify and describe injury response. **n/a**

a. Control the scene
b. Incident investigation
   - Near miss
   - Incident
   - Serious incident

c. Corrective actions
d. Follow-up
e. Reporting an injury (Workers Compensation Board of Manitoba (WCB))

7. Demonstrate navigation and retrieval of key content areas from SAFE Work Manitoba's website and apply resources directly to unit objectives. **n/a**

a. Legislation
b. Bulletins
c. Templates
d. Shop talk
e. Other resources

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Apprenticeship Manitoba

Cabinetmaker

Unit: A3 Trade Related Mathematics

Level: One
Duration: 28 hours
Theory: 28 hours
Practical: 0 hours

Overview:

This unit provides a review of foundational math concepts in the Cabinetmaker trade. The application of these concepts will help apprentices develop problem solving and critical thinking skills. Finally, this unit will prepare students to apply math concepts, problem solving, and critical thinking skills to solve trade related problems in future units of technical training in the Cabinetmaker trade.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Solve trade related foundational math problems.	**20%**
a. Proper, improper or mixed fractions	
b. Multiply, divide, reduce and expand common fractions	
c. Decimal and common fractions, standard operations and conversions	
d. Roots and exponents	
e. Order of operations	
f. Tolerances and margins of error	
g. Percentage	
2. Solve trade related problems between metric and imperial measurement systems.	**20%**
a. Linear footage	
b. Board footage	
c. Conversion factors	
3. Solve trade related problems using calculations for simple and complex geometric shapes.	**30%**
a. Perimeter and area of polygons	
• Triangle	
• Rectangle	
• Compound shapes	
b. Pythagorean theorem	
c. Volume	
• Prism	
• Cylinder	
d. Circles	
• Circumference	
• Area	
• Radius	

- Diameter

e. Angles
   - Complementary
   - Supplementary
   - Angle measurement

f. Chord lengths

4. Solve trade related problems using ratio and proportion. 10%

a. Direct
   - Scaling
   - Paint and epoxy mixtures
   - Quantity surveying
   - Estimating

b. Indirect
   - Machine gearing
   - Feed rate/revolutions per minute (RPM)

5. Solve trade related algebraic problems involving simple equations and formulas. 20%

a. Manipulate equations
   - Knife marks per inch (KMPI)
   - Radius or side lengths of objects

b. Isolate variables
   - Stair stringer length
   - Mitre cuts

c. Create simple equations
   - Horsepower
   - Watts

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Apprenticeship Manitoba

Cabinetmaker

Unit: A4 Trade Related Communications

Level: One

Duration: 7 hours

Theory: 7 hours

Practical: 0 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills required to elevate trade related communications. Beginning with the ability to recognize different learning styles and apply effective verbal and non-verbal communication practices, apprentices will describe how they are applied differently to multiple stakeholders. Apprentices will be introduced to fundamental Canadian human rights in the workplace as they interact with a variety of industry stakeholders by identifying the value of equity, diversity and inclusion in workplace as well as communication that constitutes bullying, harassment and discrimination. This unit continues to build on these face-to-face practices by applying learned techniques to various digital communication methods used on the worksite for tasks and directions. Finally, apprentices will perform these various communication skills while practicing active listening and response.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Identify and describe effective verbal and non-verbal communication practices. a. Other tradespeople b. Colleagues c. Apprentices d. Supervisors e. Clients f. Jurisdictional representatives g. Manufacturers	**15%**
2. Identify and describe learning styles. a. Visual b. Auditory c. Reading d. Writing e. Kinesthetic	**10%**
3. Identify workplace values and communication that constitutes bullying as defined by the Canadian Human Rights Act and jurisdictional human rights laws. a. Equity b. Diversity c. Inclusion d. Harassment e. Discrimination	**15%**

4. Apply communication techniques using electronic messages. **20%**

a. Emails
b. Text messages
c. Plain language and clear expressions
d. Professionalism

5. Demonstrate and perform effective communication skills and practice active listening and response. **40%**

a. Hearing
b. Interpreting
c. Reflecting
d. Responding (verbal)
e. Non-verbal (body language)
f Paraphrasing
g. Asking questions
h. Accepting constructive feedback

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Apprenticeship Manitoba

Cabinetmaker

Unit: A5 Architectural, Furniture and Shop Drawings

Level: One
Duration: 70 hours
Theory: 28 hours
Practical: 42 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills associated with interpreting architectural, furniture and shop drawings. Beginning with terminology, the unit focuses on various drawings and their characteristics and applications. The unit also covers design and creates basic dimension drawings using computer-aided design (CAD) software and manual methods. Finally, apprentices perform material take-off using various types of drawings to interpret and extract information.

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

1. Define terminology associated with architectural, furniture and shop drawings. **5%**

a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)
b. Basic design
c. Standard dimensions

2. Interpret industry standards and specifications pertaining to architectural, furniture and shop drawings. **5%**

a. Architectural Woodwork Manufacturers Association of Canada (AWMAC)
b. Architectural print specifications
c. Shop-specific standard

3. Identify and describe drawings and their characteristics and applications. **30%**

a. Categories
   - Architectural drawing set
   - Furniture drawings
   - Shop drawings
b. Drawing types
   - Orthographic projection
   - Isometric
   - Oblique
   - Perspective
   - Sketches
c. Views
   - Plan
   - Elevation
   - Section
   - Detail

- Reflected ceiling plan

d. Documentation
   - Specifications
   - Change orders
   - Request for information (RFI)
   - Addendums
   - Schedules (door and hardware)

e. Drawing conventions
   - Alphabet of lines
   - Reference numbers, symbols and abbreviations
   - Units of measurement (metric/imperial)
   - Scaling
   - Title block and legend
   - Notes and schedules

4. Demonstrate and perform design to create basic dimension drawings using computer-aided design (CAD) software and manual methods. **30%**

a. Interpret client needs and preferences

b. Recognize and resolve potential construction challenges
   - Inability to access/obstacles
   - Obstruction of utilities/services
   - Conflict between function and appearance
   - Conflict within specifications

c. Design requirements
   - Site measurements
   - Accessibility

d. Draw rough sketches to facilitate communication with client
   - Orthographic
   - Isometric
   - Floor plan

e. Create basic dimension drawings
   - Manual drafting
   - CAD

f. Verify design requirements according to project specifications

5. Demonstrate and perform material take-off using various types of drawings to interpret and extract information. **30%**

a. Determine project requirements

b. Millwork, cabinets and furniture
   - Dimensions
   - Materials
   - Finishes
   - Specifications

c. Material estimation
   - Solid wood components
   - Manufactured panel products
   - Millwork assembles
   - Hardware
   - Fixtures

d. Locations
   - Plan
   - Elevation
   - Section

- Detail
- Reflected ceiling plan

e. Generate cut list
f. Maximum yield for materials
g. Labour

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Apprenticeship Manitoba

Cabinetmaker

Unit: A6 Tools and Equipment

Level: One
Duration: 49 hours
Theory: 21 hours
Practical: 28 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills associated with tools and equipment. Beginning with terminology and safe work procedures, this unit will focus on tools and equipment, their selection, characteristics, applications and limitations. The unit covers tooling and consumables. The unit also covers the procedures to inspect, maintain, store, tools and equipment. Apprentices will describe and demonstrate the procedures to cut with tools and equipment. Finally, apprentices will perform various practice activities using tools and equipment to increase awareness and better understand their safe work procedures.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated with tools and equipment. a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work procedures pertaining to tools and equipment. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Personal protective equipment • Manufactures user manual • Injury prevention and response	**5%**
3. Identify and describe tools and equipment, their selection, characteristics, applications and limitations. a. Layout and measuring tools b. Hand tools c. Portable power tools • Electric • Battery and fuel cell • Pneumatic • Powder-actuated d. Stationary power tools • Table saw • Bandsaw • Jointer • Thickness Planner • Shaper • Compressed air system	**20%**

- Other

e. Production equipment
   - Edge bander
   - Panel saw
   - Molder
   - Dust Collection
   - Other

f. Maintenance
   - Hand tools
   - Portable power tools
   - Stationary tools
   - Production equipment

4. Identify and describe consumables and their selection, characteristics, applications and limitations. **15%**

a. Types
   - Circular
   - Band
   - Insert
   - Boring/drilling
   - Rotary

b. Blade Properties
   - Cutting ferrous metals and non-ferrous metals
   - Blade clearances, composition and rake angle
   - Cutting direction
   - Rpm
   - Feed rate

c. Tooling
   - Abrasive
   - Carbide
   - High speed steel
   - Diamond

d. Types of cuts
   - Rip/crosscut
   - Bevel/mitre
   - Compound
   - Radius

e. Consumable selection considerations
   - Grade and thickness of material
   - Type of cut
   - Cut finish
   - Tool limitation

5. Describe the procedures used to inspect, maintain, store tools and equipment. **15%**

a. Check accuracy and calibrate
   - Fences
   - Measurement gauges
   - Accessories and fixtures

b. Clean and lubricate

c. Ensure pneumatic air supply is dry and clean

d. Sharpen cutting edges

e. Performance problems

- Chipping
- Burning
- Indexing

f. Inspection
- Safety guards
- Cords, switches and connectors
- Hoses and belts
- Sensory (sound, touch and visual)

g. Lock out/tag out and removal from service

h. Safety guards
- Anti-kickback devices
- Riving knife
- Blade and belt covers

6. Describe and demonstrate the procedures to use tools and equipment. 20%

a. Layout and measuring tools
b. Hand tools
c. Portable power tools
d. Stationary power tools
e. Production equipment

7. Perform various projects using tools and equipment to increase awareness and better understand their safe work procedures. 20%

a. Hand tools
- Layout
- Wood properties
- Cutting
- Joinery
- Planning

b. Portable power tools
- Layout
- Cutting
- Boring
- Profiling
- Sanding

c. Stationary power tools
- Solid lumber breakout and dressing
- Panel product breakout and edges
- Shaping
- Compound cuts
- Boring machines

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Apprenticeship Manitoba

Cabinetmaker

Unit: A7 Materials, Adhesives and Hardware

Level: One

Duration: 21 hours

Theory: 21 hours

Practical: 0 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills of material, adhesives and hardware. Beginning with terminology and safe work procedures, this unit will focus on solid wood, manufactured panel products, glues and adhesives, fasteners and hardware, and their characteristics and applications. The unit also describes the procedures to handle material, supplies and products. Finally, apprentices will demonstrate and perform take-off of materials, adhesives and hardware for various applications.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated with material, adhesives and hardware. a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work procedures pertaining to material handling. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Safety Data Sheets • Workplace Hazardous Material Information System (WHMIS) and procedures.	**5%**
3. Interpret jurisdictional regulation and manufacturers' specifications pertaining to material, adhesives and hardware. a. Architectural Woodwork Manufacturers Association of Canada (AWMAC) b. Shop drawings	**5%**
4. Identify and describe solid wood and their characteristics and applications. a. Categories • Deciduous (Hardwood) • Coniferous (Softwood) b. Types of cuts • Flat • Rift • Quarter • Rotary c. Properties • Species • Open/closed grain • Moisture content	**15%**

- Kiln/air dry lumber
- Acclimatization
- Strength

d. Warpage
- Bow
- Crook
- Cup
- Twist

e. Grades
- First and seconds (FAS)
- Select
- Random widths and lengths (RWL)
- Board footage (calculations)
- Other

f. Defects
- Knot
- Pitch pocket
- Checks
- Wane
- Other

g. Surfacing
- Surface 4 sides (S4S)
- Rough
- Other

5. Identify and describe manufactured panel products and their characteristics and applications. **15%**

a. Types
- Medium density fiberboard
- Particle board
- Veneer core
- Melamine
- Hardwood plywood
- Flexible plywood panels
- Other

b. Sizes
- Thickness
- Width
- Length

c. Applications
- Structural/non-structural
- Interior/exterior
- Appearance
- Moisture resistant
- Prefinished
- Fire rated
- Other

6. Identify and describe glues, adhesives and their characteristics and applications. **15%**

a. Types
- Waterproof
- Water resistant

b. Glues and adhesives
   - Polyvinyl acetate (PVA)
   - Aliphatic resin
   - Hide
   - Construction adhesive
   - Contact cement
   - Caulking
   - Epoxy
   - Melamine glue
   - Other

c. Applications
   - Shelf life
   - Open/closed time
   - Curing time
   - Clamp time
   - Other

7. Identify and describe fasteners, hardware and their characteristics and applications. **15%**

a. Fasteners
   - Threaded fasteners
   - Non-threaded fasteners
   - Staples
   - Biscuits and dowels
   - Other

b. Hardware
   - Door hardware
   - Drawer hardware
   - Locks
   - Pull/knobs
   - Shelf supports
   - Other

8. Describe the procedures to handle material, supplies and products. **5%**

a. Verify products received
b. Check products for damage and quality
   Protect, pack and wrap products
   - Cardboard and corner protectors
   - Cover sheet
   - Skids
   - Plastic wrap

c. Assess size and weight of products
d. Load and secure products in transport vehicle
   - Cargo jacks
   - Straps

e. Transport supplies in shop
f. Store supplies

9. Demonstrate and perform take-off of materials, adhesives and hardware for various applications. **20%**

a. Calculate quantity of required solid lumber
   - Board foot calculations
   - Waste percentage

- Sizes and availability

b. Optimize manufactured panel products
   - Grain direction
   - Solid color no grain
   - Available sheet size

c. Quantity survey
   - Fasteners
   - Hardware
   - Glue and adhesive

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Apprenticeship Manitoba

Cabinetmaker

Unit: A8 High Pressure Decorative Laminate I

Level: One
Duration: 14 hours
Theory: 7 hours
Practical: 7 hours

Overview:

Cabinetmakers apply laminate sheets to a variety of substrates to provide a durable, sanitary and decorative finish. Many countertops are now supplied by companies that specialize in post-formed countertop manufacturing. This unit is designed to provide the apprentice with the knowledge and skills of high pressure decorative laminate (HPDL). Beginning with terminology and safe work practices, the unit covers drawings, industry standards and product specifications. The unit will identify and describe HPDL. The unit will also cover procedures to prepare HDPL and substrates. Finally, apprentices will demonstrate and perform fabrication of various applications using HPDL.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated with high pressure decorative laminate (HPDL). a. Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work practices associated with HPDL. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Material handling procedures • Safety data sheets	**5%**
3. Interpret drawings, industry standards and product specifications pertaining to HPDL. a. Shop drawings b. Architectural Woodwork Manufacturers Association of Canada c. Manufactures fabrication guide	**5%**
4. Identify and describe HPDL. a. Grades • General Purpose • Vertical Grade • Post-form • Backer • Specialty • Other b. Sheet sizes • Width • Length	**35%**

- Thickness

c. Properties
   - Composition
   - Grain direction
   - Colours and patterns
   - Textures and finishes
   - Balanced construction

d. Substrates
   - Mdf
   - Particleboard
   - Veneer core
   - Other

e. Adhesives
   - Contact Cement
   - Polyvinyl Acetate (PVA)
   - Application methods

f. Tools and equipment
   - Laminate knife
   - Saws
   - Routers
   - Carbide tooling
   - Files

5. Describe the procedures to prepare HDPL and substrates. 25%

a. Choose size, grade and thickness of laminate sheets and substrate
b. Inspect laminate sheets for flaws and damage
c. Balance sheet
d. Select and use tools and equipment
e. Cut laminate sheets
f. Handle laminate sheets with care
g. Cut substrate
h. Join laminate
   - Edge
   - Seams
   - Sequence

6. Demonstrate and perform fabrication of various applications using HPDL. 25%

a. Drawings
   - Dimensions
   - Location
   - Material requirements

b. Prepare substrate
   - Cut
   - Join

c. Prepare HPDL
d. Adhere HPDL to substrate
e. Final cleanup
   - Trim and file
   - Clean

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Apprenticeship Manitoba

Cabinetmaker

Unit: A9 Material Breakout, Machine Setup and Troubleshooting

Level: One
Duration: 21 hours
Theory: 7 hours
Practical: 14 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills in material breakout, machine setup and troubleshooting. Beginning with terminology and safe work practices, this unit will focus on solid wood, sheet materials and their characteristics and applications. The unit covers the procedures to dress and shape solid wood. The unit also covers the procedures breakout and machine sheet goods. Finally, apprentices will perform material breakout, machine setup and troubleshooting.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated to material breakout, machine setup and troubleshooting. a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work procedures pertaining to material breakout, machine setup and troubleshooting. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Safety data sheets • Personal protective equipment • Workplace Hazardous Material Information System (WHMIS) and procedures.	**5%**
3. Interpret industry standards and drawings pertaining to material breakout, machine setup and troubleshooting. a. Architectural Woodwork Manufacturers Association of Canada (AWMAC) b. Shop-specific standard c. Drawings	**5%**
4. Identify and describe solid wood, and its characteristics and applications. a. Properties and characteristics • Cut • Wood grain • Color • Equilibrium moisture content (EMC) b. Breakout • Dimensions, quantities and species of solid wood c. Defects • Knots	**10%**

- Heartwood/sapwood
- Warpage (cup, bow, crown and twist)
- Other

d. Select tools and equipment
- Tablesaw
- Jointer
- Planer
- Shaper/router table
- Bandsaw/re-saw
- Lathe

e. Performance problems
- Tear-out
- Burning
- Tooling
- Feed rate
- Revolution per minute (Rpm)

5. Describe and demonstrate the procedures to dress and shape solid wood. 20%

a. Cutting operations
- Cross-cut
- Joint
- Rip
- Plane
- Re-saw
- Mitre/bevel
- Shape
- Turning

b. Select and change cutting tooling
- Blades
- Knifes
- Cutter heads
- Other

c. Avoid tear outs
- Climb cutting
- Feed rate
- RPM

d. Shape solid wood
- Curves and cut-outs
- Taper
- Spindles

e. Profile solid wood
- Edge (bevel and round over)
- Face (crown and cove)

f. Secure project to clamping device
- Clamp
- Stops
- Pneumatic devices

g. Set up stock feeders
- Cutter heads
- Other

h. Quality control
- Washboard

- Unwanted Taper
- Tear-out
- Burning
- Snipe
- Other

6. Describe sheet materials, and their characteristics and applications. 10%

a. Types
- Melamine
- Particle board
- Medium density fibreboard (MDF)
- Veneer core
- High pressure decorative laminate (HPDL)

b. Optimize Sheets
- Parts

c. Select tools and equipment
- Panel saw
- Tablesaw
- Track saw
- Edgebander

d. Performance problems
- Chipping
- Burning
- Parts not square
- Tool accuracy and calibration

7. Describe and demonstrate the procedures to breakout and machine sheet goods. 20%

a. Determine type of sheet material

b. Cutting operations
- Crosscut
- Rip
- Mitre
- Edgeband

c. Determine edge treatment
- Solid wood
- Polyvinyl chloride (PVC)
- HPDL

d. Develop cut list
- Finish size (cut size adjusted for edgeband thickness)
- Optimize

e. Machine set-up
- Ensure saw blades are sharp and scoring blades are aligned
- Accuracy and calibration

f. Cut sheet material to size

g. Quality control
- Panels out of square
- Chipping
- Burning
- Uneven edge (edgebanding application)

8. Perform material breakout, machine setup and troubleshooting. 25%

a. Project planning

- Interpret drawings
- Cutlist
- Optimization
- Order of operations

b. Solid wood
   - Breakout
   - Dress
   - Shape

c. Sheet materials
   - Breakout
   - Edge

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Apprenticeship Manitoba

Cabinetmaker

Unit: A10 Furniture Building Traditions

Level: One
Duration: 77 hours
Theory: 21 hours
Practical: 56 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills of furniture building traditions. Beginning with terminology and safe work practices, the unit covers laminating wood and composite materials. The unit also covers furniture assembly, their characteristics and applications. Apprentices will describe and demonstrate the procedures to combine furniture components into subassemblies and final assemblies. Finally, apprentices will perform furniture fabrication and assembly.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated with furniture building traditions. a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work procedures for furniture building traditions. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Safety data sheets • Workplace Hazardous Material Information System (WHMIS) and procedures. • Personal protective equipment	**5%**
3. Interpret industry standards and drawings pertaining to furniture building traditions. a. Architectural Woodwork Manufacturers Association of Canada (AWMAC) b. Shop-specific standard c. Drawings	**5%**
4. Identify and describe laminating wood, composite materials and their characteristic and applications. a. Types of laminated products • Butcher block tops • Tables • Panels • Segmented layers b. Wood properties • Moisture content • Absorption rate c. Types of adhesives	**10%**

- Wood glues
- Epoxies
- Polyurethanes
- Waterproof

d. Adhesive properties
- Open time
- Clamp time
- Curing time
- Clean-up

e. Application Methods
- Rolling
- Brushing

f. Laminating troubleshooting
- Sunken joints
- Delamination
- Starved joints
- Warping

5. Identify and describe furniture assembly, and its characteristics and applications. 10%

a. Furniture styles
- Chippendale
- Queen Anne
- Victorian
- Shaker
- Other

b. Furniture components
- Legs, feet and aprons
- Decorative moldings
- Splats
- Gables, tops, bottoms and backs
- Doors and drawer fronts
- Drawer boxes and bases
- Face frame

c. Types of doors
- Raised panel
- Flat panel
- Slab
- Tambour
- Sliding

d. Standard measurements
- Height, width and depth
- Thickness, width and length

e. Properties
- Expansion/contraction

f. Joints
- Dowel
- Biscuit
- Dovetail
- Rabbet and dado
- Mortise and tenon
- Mitre
- Other

g. Fasteners
   - Biscuits, dowels, splines and screws
   - Assembly fittings, pins and glue blocks
   - Ready to assemble (RTA) fasteners

h. Door and drawer front applications
   - Full-overlay, half-overlay and inset

i. Door hardware
   - Hinges (concealed, butt, piano and pivot)
   - Soft-closing (european)
   - Locks
   - Pulls and knobs

j. Drawer hardware
   - Full-extension slides
   - Soft-closing
   - Friction fit
   - Other

6. Describe and demonstrate the procedures to assemble furniture components into subassemblies. **10%**

a. Select and use tools and equipment
   - Case clamp and various clamping devices
   - Mallet and dead blow hammer
   - Other

b. Apply adhesive to joints
c. Select fasteners
d. Join sub-assembly components
e. Join cabinet components
f. Verify and adjust final assembly for square and accuracy
g. Remove excess adhesive

7. Describe and demonstrate the procedures to combine furniture components into final assemblies. **15%**

a. Apply components into final assembly
   - Decorative moulding and edging
   - Face frame
   - Plinth
   - Legs and feet
   - Other

b. Install hardware
   - Hinges
   - Slides
   - Locks

c. Install specialty hardware
   - Drop leaf hinges
   - Table slides
   - Swivels
   - Retractable door hardware

d. Install drawer boxes
e. Install and adjust doors and drawer fronts
   Install decorative hardware
   - Knobs and pulls

f. Install glass and decorative panels into framework
g. Test and evaluate all components

- Operation
- Aesthetic appeal

8. Perform furniture fabrication and assembly. 40%

a. Interpret drawings
b. Layout
c. Machine components
d. Joinery
e. Dry fit
f. Glue and assemble components
g. Combine components in final assemblies
h. Surface preparation

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Apprenticeship Manitoba

Cabinetmaker

Unit: A11 Surface Preparation

Level: One
Duration: 14 hours
Theory: 7 hours
Practical: 7 hours

Overview:

This unit is designed to provide the apprentice with the knowledge and skills with surface preparation. Beginning with terminology, hazards and safe work practices, the unit covers abrasives and their characteristics and applications. The unit also covers inspection repairs characteristics and applications. Apprentices will describe and demonstrate procedures to repair imperfections. Finally, apprentices will describe and demonstrate the procedures to prepare parts and final sanding.

Objectives and Content:	**Percent of Unit Mark (%)**
1. Define terminology associated with surface preparation. a. Refer to Cabinetmaker Red Seal Occupational Standard (RSOS)	**5%**
2. Identify hazards and describe safe work practices pertaining to surface preparation. a. Relevant content and resources from unit *A2 Trade Safety Awareness* • Safety data sheets (material dust hazards) • Workplace Hazardous Material Information System (WHMIS) and procedures • Personal protective equipment	**10%**
3. Interpret industry standards and drawings pertaining to surface preparation.	**5%**
4. Identify and describe abrasives and their characteristics and applications. a. Tools and equipment • Orbital sander • Profile sander • Wide-belt sander • Sanding block • Cabinet scraper • Sanding sponge b. Material properties • Species of wood • Veneer thickness • Grain pattern c. Types • Aluminium oxide • Garnett	**15%**

- Silicone carbide
- Ceramic
- Emery
- Flint

b. Grits
- 100, 120, 150, 180 and 220
- Open coat/closed coat
- Bonding

c. Backers
- Paper
- Cloth
- Flexing

5. Identify and describe inspection repairs characteristics and applications. 15%

a. Defects
- Machine marks
- Excess adhesive
- Scratches
- Dents
- Blemishes
- Pencil marks
- Natural imperfections (knots, pitch pockets and sapwood)

b. Repair tools and equipment
- Scrapers and sandpaper
- Irons
- Putty knives
- Sandpaper
- Other

c. Materials
- Shellac stick
- Wood fillers
- Bleach
- Oxalic acid
- Other

6. Describe and demonstrate procedures to repair imperfections. 25%

a. Check material for imperfections
b. Select and use tools and equipment
c. Sand and scrape excess glue and blemishes
d. Fill nail holes, tear-outs and depressions
e. Steam wood to remove depressions

7. Describe and demonstrate the procedures to prepare parts and final sanding. 25%

a. Remove hardware
b. Mask surfaces
c. Remove cross grain marks
d. Remove sharp edges
e. Select grit of sandpaper to finish
f. Remove excess dust

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