



Saskatchewan
Apprenticeship and
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Commission



Apprenticeship

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FRAMER SUBTRADE OF CARPENTER

PROVINCIAL OCCUPATIONAL ANALYSIS

2005
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Trade Description:

Framers interpret blueprints, specifications and codes to lay out, construct, sheath and erect floor, wall and roof systems to determine the shape of houses and buildings. Finalization of these projects occurs with the installation of exterior doors and windows.

Structure of Analysis

To facilitate the understanding of the nature of the occupation, the work performed is divided into the following divisions:

- A. **Block:** is the largest division within the analysis and reflects a distinct operation relevant to the occupation.

- B. **Task:** is the distinct activity that, when combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "Block".

- C. **Sub-task:** is the smallest division into which it is practical to subdivide any work activity and, combined with others, fully describes all duties constituting a "Task".

Supporting Knowledge & Abilities:

The element of skill and knowledge that an individual must acquire to adequately perform the task.

Framer - a subtrade of the carpenter trade

Block A - Occupational Skills (common to all carpenter subtrades)

Task 1 Uses Tools and Equipment

1.01 Uses hand tools

- 1.01.01 knowledge of measuring layout and marking tools such as tape measures, squares, and dividers
- 1.01.02 knowledge of fastening tools such as hammers, wrenches, screwdrivers and staplers
- 1.01.03 knowledge of dismantling and prying tools such as nail pullers, wrecking bars and goosenecks
- 1.01.04 knowledge of cutting tools such as saws, files and rasps
- 1.01.05 knowledge of boring tools such as push drills and brace and bits
- 1.01.06 knowledge of abrading and planing tools such as planes, chisels and sand paper
- 1.01.07 ability to select and manipulate hand tools
- 1.01.08 ability to maintain hand tools

1.02 Uses portable power tools

- 1.02.01 knowledge of types of electric and battery powered portable power tools such as saws, drills, planers and sanders
- 1.02.02 knowledge of types and uses of blades, bits and grits
- 1.02.03 knowledge of types of pneumatic powered portable power tools such as framing nailers and brad nailers
- 1.02.04 knowledge of types of gas powered portable power tools such as compressors, generators and compaction equipment
- 1.02.05 knowledge of types of powder actuated portable power tools and their applicable shots and nails
- 1.02.06 knowledge of oxy-acetylene cutting equipment
- 1.02.07 knowledge of manufacturers' specifications
- 1.02.08 ability to recognize hazards such as worn cords, leaking hoses and dull blades

- 1.02.09 ability to select and install blades bits and grits appropriate to specific tasks
 - 1.02.10 ability to select, set up and operate portable power tools
 - 1.02.11 ability to shut down, dismantle and store portable power tools
 - 1.02.12 ability to maintain portable power tools
- 1.03 Uses stationary power tools
- 1.03.01 knowledge of types of stationary power tools such as table saws, bench grinders, thickness planers and radial arm saws
 - 1.03.02 knowledge of manufacturers' specifications
 - 1.03.03 ability to recognize hazards such as worn cords, leaking hoses and dull blades
 - 1.03.04 ability to select, set up and operate stationary power tools
 - 1.03.05 ability to shut down, dismantle and store stationary power tools
 - 1.03.06 ability to maintain stationary power tools
- 1.04 Uses survey (layout) instruments
- 1.04.01 knowledge of basic line terminology such as benchmark and elevation
 - 1.04.02 knowledge of survey tools such as levels and plumb bobs
 - 1.04.03 knowledge of survey instruments such as builder's levels and laser levels
 - 1.04.04 ability to determine instrument accuracy
- 1.05 Uses personal protective equipment (PPE)
- 1.05.01 knowledge of types of PPE such as hard hats, hearing protection and fall protection
 - 1.05.02 knowledge of PPE operation
 - 1.05.03 ability to recognize worksite hazards
 - 1.05.04 ability to select PPE
 - 1.05.05 ability to inspect and maintain PPE

- 1.06 Uses material handling, rigging and hoisting equipment
 - 1.06.01 knowledge of types of material handling, rigging and hoisting equipment such as come-a-longs, and block & tackle
 - 1.06.02 knowledge of components of material handling, rigging and hoisting equipment
 - 1.06.03 knowledge of safe material handling, rigging and hoisting practices
 - 1.06.04 knowledge of knots and hitches
 - 1.06.05 ability to calculate loads and weights
 - 1.06.06 ability to select material handling, rigging and hoisting equipment
 - 1.06.07 ability to inspect material handling, rigging and hoisting equipment
 - 1.06.08 ability to identify unsafe material handling, rigging and hoisting equipment
 - 1.06.09 ability to connect and operate material handling, rigging and hoisting equipment
 - 1.06.10 ability to dismantle and store material handling, rigging and hoisting equipment
 - 1.06.11 ability to maintain material handling, rigging and hoisting equipment

Task 2 Uses Building Materials

- 2.01 Uses fasteners, adhesives and connectors
 - 2.01.01 knowledge of types of fasteners, adhesives and connectors such as double-headed nails, contact cement and joist hangers
 - 2.01.02 knowledge of applications for specific fasteners, adhesives and connectors such as gypsum board, wood joints and structural support
 - 2.01.03 knowledge of problems related to the installation of fasteners, adhesives and connectors such as moisture, pressure and wind loads
 - 2.01.04 ability to select fasteners, adhesives and connectors
 - 2.01.05 ability to store fasteners, adhesives and connectors

- 2.02 Uses structural materials
 - 2.02.01 knowledge of structural materials such as wood, concrete, masonry and steel
 - 2.02.02 knowledge of structural material applications
 - 2.02.03 knowledge of structural material properties such as composition, moisture content, sizing and strength
 - 2.02.04 ability to assess condition, quality or grade of structural materials
 - 2.02.05 ability to select structural materials
 - 2.02.06 ability to store structural materials

- 2.03 Uses non-structural materials
 - 2.03.01 knowledge of non-structural materials such as plastic, gypsum products, siding and roofing materials
 - 2.03.02 knowledge of non-structural material applications
 - 2.03.03 knowledge of non-structural material properties such as composition, moisture content, sizing and strength
 - 2.03.04 ability to assess condition, quality or grade of non-structural materials
 - 2.03.05 ability to select non-structural materials
 - 2.03.06 ability to store non-structural materials

- 2.04 Uses insulations, membranes and sealants
 - 2.04.01 knowledge of building science principles
 - 2.04.02 knowledge of air and vapour flows and sound transmission
 - 2.04.03 knowledge of moisture related problems
 - 2.04.04 knowledge of types of insulating materials such as thermal and acoustical
 - 2.04.05 knowledge of types of membranes such as air/weather barriers, moisture barriers and dampproofing barriers
 - 2.04.06 knowledge of types of sealants such as butyl rubber, acoustic and silicone
 - 2.04.07 ability to select insulations such as fibreglass, rigid, R-value, thermal and acoustical
 - 2.04.08 ability to select barriers such as air/weather, vapour, gas and smoke
 - 2.04.09 ability to select dampproofing, foundation protection and drainage
 - 2.04.10 ability to select gaskets such as plate gaskets and backer rod

Task 3 Interprets Construction Documents

- 3.01 Interprets blueprints, specifications and drawings
 - 3.01.01 knowledge of types of drawings such as floor, elevation, section and shop
 - 3.01.02 knowledge of drawing components such as lines, symbols and legends
 - 3.01.03 knowledge of the components of specification documents such as sections and tables
 - 3.01.04 ability to use interpretation instruments such as protractors, scale rulers and calculators
 - 3.01.05 ability to apply codes, regulations and standards
 - 3.01.06 ability to use manufacturers' documentation

- 3.02 Applies codes, regulations and standards
 - 3.02.01 knowledge of the National Building Code (NBC)
 - 3.02.02 knowledge of the provincial, territorial and municipal codes
 - 3.02.03 knowledge of the National Energy Code
 - 3.02.04 knowledge of the Canadian Standards Association (CSA) standards
 - 3.02.05 knowledge of the Occupational Health & Safety (OH&S) Act and Regulations
 - 3.02.06 knowledge of the Workplace Hazardous Materials Information System (WHMIS) symbols and data sheets

- 3.03 Estimates materials
 - 3.03.01 knowledge of procedures for performing quantity take-offs
 - 3.03.02 knowledge of manufacturers' specifications
 - 3.03.03 ability to perform calculations such as area, volume and length of arc

- 3.04 Schedules work sequence
 - 3.04.01 knowledge of task requirements
 - 3.04.02 knowledge of requirements of other trades
 - 3.04.03 ability to record sequence of project
 - 3.04.04 ability to schedule materials to meet project needs
 - 3.04.05 ability to work with other trades
 - 3.04.06 ability to estimate time requirements to complete tasks

Task 4 Performs Project Related Skills

4.01 Performs site layout

- 4.01.01 knowledge of basic geometry such as cross-diagonal and the 3-4-5 method of squaring
- 4.01.02 knowledge of basic survey theory
- 4.01.03 knowledge of local regulations such as property line setbacks and height restrictions
- 4.01.04 ability to construct layout structures such as batter boards and temporary benchmarks
- 4.01.05 ability to operate hand layout tools such as levels, plumb bobs, and water levels
- 4.01.06 ability to operate instrument layout equipment such as builder's levels and laser levels
- 4.01.07 ability to locate survey markers and bench marks
- 4.01.08 ability to establish centre line or edge locations
- 4.01.09 ability to establish elevations
- 4.01.10 ability to establish offsets

4.02 Prepares site

- 4.02.01 knowledge of excavation (digging/backfilling) techniques
- 4.02.02 ability to determine site conditions such as soil types, water problems and shoring requirements
- 4.02.03 ability to recognize site soil conditions such as filled, frost and virgin
- 4.02.04 ability to erect temporary utilities
- 4.02.05 ability to recognize the possibility of collapse of existing structures
- 4.02.06 ability to install protection such as shoring and underpinning
- 4.02.07 ability to plan for storage and access of building materials and equipment

4.03 Communicates

- 4.03.01 knowledge of methods of communication
- 4.03.02 ability to verbally communicate ideas and methods of construction
- 4.03.03 ability to complete work-related records
- 4.03.04 ability to communicate with authorities such as building inspectors, architects and safety officers
- 4.03.05 ability to use International Hand Signals for equipment

- 4.03.06 ability to develop sketches from drawings
- 4.04 Erects temporary structures or access equipment
 - 4.04.01 knowledge of types and limitations of scaffold systems, guard rails, ladders, jacks, ramps and temporary stairs
 - 4.04.02 ability to select types of scaffold systems, guard rails, ladders, jacks, ramps and temporary stairs
 - 4.04.03 ability to erect, dismantle, inspect and maintain scaffolds, guard rails, ladders, jacks, ramps and stairs
 - 4.04.04 ability to build and install heating, environmental and safety protections such as hoarding, exhaust fans and construction heaters

Block B - Framing

Task 5 Lays Out Framing Systems

- 5.01 Lays out floor and ceiling systems
 - 5.01.01 knowledge of types of floor and ceiling systems
 - 5.01.02 knowledge of floor framing members such as beams, joists and headers
 - 5.01.03 knowledge of load-bearing and interior wall locations
 - 5.01.04 knowledge of blocking and backing requirements
 - 5.01.05 knowledge of requirements of other trades
 - 5.01.06 ability to perform calculations to determine measurements such as area and span requirements
 - 5.01.07 ability to lay out features such as cantilevers and sunken or drop floors
 - 5.01.08 ability to lay out openings such as stairwells and chases
 - 5.01.09 ability to select materials
- 5.02 Lays out wall systems
 - 5.02.01 knowledge of types of wall systems such as strapped, double-wall and SIPS (Structural Insulated Panel Systems)
 - 5.02.02 knowledge of wall framing members such as plates, studs, cripple and lintel

- 5.02.03 knowledge of door and window rough opening requirements
 - 5.02.04 knowledge of blocking and backing requirements
 - 5.02.05 knowledge of corner and intersecting wall framing techniques
 - 5.02.06 knowledge of requirements of other trades
 - 5.02.07 ability to perform calculations to determine measurements such as lintel size, length of wall, height of wall and location of openings
 - 5.02.08 ability to lay out wall openings such as windows and doors
 - 5.02.09 ability to determine location of walls
 - 5.02.10 ability to select materials
- 5.03 Lays out roof systems
- 5.03.01 knowledge of types of roof systems such as trussed and framed
 - 5.03.02 knowledge of roof styles such as gable, hip, gambrel and turret.
 - 5.03.03 knowledge of types of trusses such as girder, scissor, mono-pitch and parallel cord
 - 5.03.04 knowledge of roof framing members such as hip rafter, gable end stud, lookouts and collar ties
 - 5.03.05 knowledge of opening requirements for features such as chimney chases, dormers and skylights
 - 5.03.06 knowledge of cornice construction requirements
 - 5.03.07 ability to perform calculations to determine measurements such as slope and rafter length
 - 5.03.08 ability to select materials
- 5.04 Lays out stairs
- 5.04.01 knowledge of types of stairs such as straight and geometric
 - 5.04.02 knowledge of building codes
 - 5.04.03 knowledge of stair geometry
 - 5.04.04 knowledge of hand and guard rail geometry
 - 5.04.05 ability to read plans and specifications
 - 5.04.06 ability to perform calculations to determine measurements such as rise, run and allowable headroom

Task 6 **Constructs Framing Systems**

- 6.01 Constructs floor and ceiling systems
 - 6.01.01 knowledge of types of floor and ceiling systems such as dimensional lumber, timber and manufactured I-beam
 - 6.01.02 knowledge of types of floor and ceiling framing members such as joists, beams and rim joist
 - 6.01.03 knowledge of types of floor sheathing
 - 6.01.04 knowledge of notching and drilling of framing members
 - 6.01.05 ability to select materials
 - 6.01.06 ability to construct framing features such as cantilevers and sunken or drop floors
 - 6.01.07 ability to construct floor openings such as stairwells and chases
 - 6.01.08 ability to install materials such as crown up
 - 6.01.09 ability to install fastening devices such as hangers and anchors
 - 6.01.10 ability to assemble components such as joists, beams and rim joists
 - 6.01.11 ability to install components such as blocking, backing, strapping, shims, bridging ribbon strip and sleepers
 - 6.01.12 ability to square and level floor system
 - 6.01.13 ability to install floor sheathing

- 6.02 Constructs wall systems
 - 6.02.01 knowledge of types of wall systems such as platform, balloon, timber, steel stud, panel, Preserved Wood Foundations (PWF) and SIPS (Structural Insulated Panel Systems)
 - 6.02.02 knowledge of types of wall sheathing
 - 6.02.03 ability to select materials
 - 6.02.04 ability to install fastening devices such as hangers and anchors
 - 6.02.05 ability to place materials such as crown up
 - 6.02.06 ability to sequence erection of walls
 - 6.02.07 ability to assemble components such as plates, studs and lintels
 - 6.02.08 ability to install components such as blocking, backing, furring and firestops
 - 6.02.09 ability to square walls
 - 6.02.10 ability to install wall sheathing
 - 6.02.11 ability to align, plumb and brace walls

- 6.03 Constructs roof systems
 - 6.03.01 knowledge of types of roof systems such as dimensional lumber, timber and manufactured trusses
 - 6.03.02 knowledge of types of roof framing members such as rafters, purlins, collar ties, webs and chords
 - 6.03.03 knowledge of types of cornice construction such as box, snub and open
 - 6.03.04 knowledge of types of cornice components such as fascia board, nailing strip and lookout
 - 6.03.05 knowledge of cornice materials such as wood, vinyl and aluminium
 - 6.03.06 knowledge of types of roof sheathing
 - 6.03.07 ability to select materials
 - 6.03.08 ability to install fastening devices such as hangers, anchors and H-clips
 - 6.03.09 ability to place materials such as crown up
 - 6.03.10 ability to assemble components such as rafters, jacks, collar ties and trusses
 - 6.03.11 ability to install components such as ridge blocking, strapping and bracing
 - 6.03.12 ability to align, plumb and brace roofing members
 - 6.03.13 ability to install roof sheathing
 - 6.03.14 ability to install cornice framing members

Task 7 Installs Exterior Doors and Windows

- 7.01 Installs exterior jambs and frames
 - 7.01.01 knowledge of types of door and window jambs or frames including skylights
 - 7.01.02 knowledge of installation procedures
 - 7.01.03 ability to interpret door and window schedules
 - 7.01.04 ability to select door jambs and window frames according to swing (hand) and dimension
 - 7.01.05 ability to verify rough openings
 - 7.01.06 ability to install building paper in rough openings
 - 7.01.07 ability to install blocking and backing
 - 7.01.08 ability to construct jambs or frames
 - 7.01.09 ability to apply polyethylene wrap to jambs and frames
 - 7.01.10 ability to insulate cavities around jambs or frames
 - 7.01.11 ability to adjust and shim jambs or frames

- 7.01.12 ability to fasten jambs or frames in wall systems such as wood, steel stud, masonry and concrete
- 7.01.13 ability to measure and retrofit windows
- 7.02 Hangs exterior doors and windows
 - 7.02.01 knowledge of types of doors and windows
 - 7.02.02 knowledge of door and window components
 - 7.02.03 knowledge of weather protection techniques
 - 7.02.04 ability to interpret door and window schedules
 - 7.02.05 ability to select doors and windows according to swing (hand) and dimension
 - 7.02.06 ability to verify openings for square and plumb
 - 7.02.07 ability to locate and install hinges
 - 7.02.08 ability to use templates or jigs
 - 7.02.09 ability to fit and adjust doors or windows for proper operation
 - 7.02.10 ability to install overhead doors
- 7.03 Installs exterior door or window hardware
 - 7.03.01 knowledge of types and styles of hardware
 - 7.03.02 ability to interpret hardware schedule or list
 - 7.03.03 ability to select hardware
 - 7.03.04 ability to use templates or jigs
 - 7.03.05 ability to adjust hardware