



Glazier

On-the-Job Training Guide

2024

Online: www.saskapprenticeship.ca

Recognition:

To promote transparency and consistency, this document has been adapted from the 2020 Glazier Red Seal Occupational Standard (Employment and Social Development Canada).

A complete version of the Occupational Standard can be found at www.red-seal.ca

STRUCTURE OF THE ON-THE-JOB TRAINING GUIDE

To facilitate understanding of the occupation, this on-the-job training guide contains the following sections:

Training Requirements for the Glazier Trade: Information about apprenticeship hours, years of service and journey person to apprentice ratios.

Task Matrix: a chart which outlines graphically the major work activities, tasks and sub-tasks of this standard detailing the essential skills and the level of training where the content is covered.

Major Work Activity (MWA): the largest division within the standard that is comprised of a distinct set of trade activities.

Task: distinct actions that describe the activities within a major work activity.

Sub-task: distinct actions that describe the activities within a task.

On-the-Job Training Content for the Glazier Trade: a chart which outlines the topics of technical training with on-the-job examples for apprentice to achieve relevant experience at work.

TRAINING REQUIREMENTS FOR THE GLAZIER TRADE

To graduate from each level of the apprenticeship program, an apprentice must successfully complete the required technical training and compile enough on-the-job experience to total at least 1800 hours each year. Total trade time required is 7200 hours and at least 4 years in the trade.

Journeyman to apprentice ratio for this trade is: 1:3

The information contained in this document serves as a guide for employers and apprentices. Apprenticeship training is mutually beneficial to both employer and apprentice. The employer's investment in training apprentices results in skilled and certified workers. The document summarizes the tasks to be covered by the apprentice during their on-the-job portion of apprenticeship training. An apprentice spends approximately 85% of their apprenticeship term training on-the-job.

It is the employer's or journeyman's responsibility to supervise an apprentice's practical skills development until a satisfactory level of proficiency has been reached.

EMPLOYER TRAINING RESPONSIBILITY

- promote a safety-conscious workplace
- provide mentored, hands-on practice in the use of tools and equipment
- demonstrate procedures relevant to layout, forming, framing, exterior and interior finishing
- further the apprentice's ability to interpret technical drawings
- allow the apprentice to apply procedures used for estimating materials, costing projects and supervising personnel
- ensure that the apprentice can evaluate the end product
- where possible, expose the apprentice to new technology in the Carpenter trade

Employers should make every effort to expose their apprentices to work experience in as many areas of the trade as possible.

In the On-the-Job Training Guide, in-school instruction is listed first; on-the-job suggestions to help employers assist the apprentice to prepare for in-school training are listed next.

The content of the training components is subject to change without notice.

GLAZIER TASK MATRIX

This chart outlines the major work activities, tasks and sub-tasks from the 2020 Glazier Red Seal Occupational Standard.

A - Performs common occupational skills

17%

Task A-1 Performs safety-related functions	1.01 Maintains safe work environment	1.02 Uses personal protective equipment (PPE) and safety equipment			
Task A-2 Uses tools and equipment	2.01 Uses hand tools	2.02 Uses portable and stationary power tools	2.03 Uses layout and measuring equipment	2.04 Uses access equipment	
Task A-3 Uses rigging, hoisting and lifting equipment	3.01 Uses rigging equipment	3.02 Uses hoisting and lifting equipment			
Task A-4 Organizes work	4.01 Uses documentation and reference material	4.02 Interprets plans, drawings and specifications	4.03 Prepares list of materials and supplies	4.04 Plans project tasks	
Task A-5 Performs routine trade activities	5.01 Prepares worksite	5.02 Handles glass and other materials	5.03 Prepares materials for installation	5.04 Stores glass and other materials	5.05 Performs glass cutting and edge treatment

5.06 Installs building envelope membrane	5.07 Install flashing	5.08 Applies sealants
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B – Fabricates and installs commercial window and door systems

34%

Task B-7 Fabricates commercial window and door systems	7.01 Fabricates curtain walls	7.02 Fabricates storefronts	7.03 Fabricates window systems	7.04 Fabricates skylights and sloped glazing systems	7.05 Fabricates entrance systems
Task B-8 Installs commercial window and door systems	8.01 Lays out commercial window and door systems	8.02 Installs curtain wall systems	8.03 Installs storefront systems	8.04 Installs window systems	8.05 Installs skylights and sloped glazing systems
	8.06 Installs entrance systems				

C – Installs residential window and door systems

14%

Task C-9 Installs residential window systems	9.01 Lays out residential window systems	9.02 Sets windows in openings	9.03 Glazes windows
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Task C-10 Installs residential door systems	10.01 Lays out residential door systems	10.02 Assembles residential door frames	10.03 Sets residential doors and frames	10.04 Installs residential door hardware	10.05 Glazes residential doors
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D – Fabricates and installs specialty glass, products and glass systems

16%

Task D-11 Fabricates and installs commercial specialty glass and products	11.01 Lays out commercial specialty glass and products	11.02 Assembles commercial specialty glass, products and hardware	11.03 Installs commercial specialty glass, products and hardware
Task D-12 Fabricates and installs residential specialty glass and products	12.01 Lays out residential specialty glass and products	12.02 Assembles residential specialty glass, products and hardware	12.03 Installs residential specialty glass, products and hardware

E – Performs servicing

19%

Task E-13 Services commercial window and door systems	13.01 Assesses service requirements for commercial window and door systems	13.02 Repairs commercial window and door systems
Task E-14 Services residential window and door systems	14.01 Assesses service requirements for residential window and door systems	14.02 Repairs residential window and door systems

Task E-15 Services specialty glass and products

15.01 Assesses services requirements for specialty glass and products

15.02 Repairs specialty glass and products



TRAINING PROFILE CHART

Technical Training is delivered outside the province of Saskatchewan. This Training Profile Chart represents Alberta's NAIT/SAIT technical training at the topic level.

Level One
Standard Workplace Safety
Tools and Construction Products
Glass and Glass Fabrication 1
Glazing and Service 1
Window Systems
Math and Drawing Interpretation 1

Level Two
Glass and Glass Fabrication 2
Glazing and Service 2
Construction Product Application
Frames and Door Systems
Math and Drawing Interpretation 2

Level Three
Frame Systems 1
Door Systems 1
Glazing and Service 3
Sloped Glazing Systems
Math and Drawing Interpretation 3

Level Four
Red Seal Programs and Specialty Products
Frame Systems 2
Door Systems 2
Glazing and Service 4
Math and Drawing Interpretation 4

ON-THE JOB AND IN-SCHOOL TRAINING

CONTENT FOR THE GLAZIER TRADE

This chart outlines on-the-job examples for apprentices to achieve relevant work experience to prepare for the topics of technical training. Topics of technical training are provided with the associated learning outcomes.

Level One

6 weeks

180 hours

Standard Workplace Safety

- apply legislation, regulations and practices
- use industry standard practices for climbing, lifting, rigging and hoisting
- apply industry standard practices for hazardous materials and fire protection
- describe the safety procedures of scaffolding and access equipment
- operate swing stage scaffold system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *providing WHMIS and OH&S training*
 - *interpreting building codes and hazardous products*
 - *providing company-specific safety training*
 - *ensuring access to printed informational material*
 - *identifying scaffold systems and structures, base conditions and tagging*
 - *introducing the apprentice to swing stage safety, inspection and operation wherever possible*
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Tools and Construction Products

- use and maintain hand tools
- operate and maintain portable saws and their applications
- operate and maintain stationary power tools
- use fasteners, adhesives and sealants

Mentors can assist the apprentice to prepare for this section of technical training by:

- *providing introductory hand and power tool training in the shop*
 - *training in the identification and application of fasteners, adhesives and sealants*
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Glass and Glass Fabrication 1

- recognize common types of glass
- perform methods of glass storage and handling
- describe the glass manufacturing process
- perform cutting and edging of glass

Mentors can assist the apprentice to prepare for this section of technical training by:

- *providing hands-on training in safe glass handling, i.e. suction cups, straps, tie downs, etc.*
 - *allowing the apprentice to assist journey person*
 - *training in the duties involved with glass cutting and handling in the shop*
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Glazing and Service 1

- operate and maintain glazing tools used in the trade
- fabricate window screening products
- use codes and standards pertaining to the glazing industry
- describe automotive glass removal and installation procedures
- service flat glass products

Mentors can assist the apprentice to prepare for this section of technical training by:

- *describing tools used to glaze wood, aluminum and steel sash*
- *explaining window screen components*
- *providing hands-on experience in auto glass installation with supervision*
- *introducing National Auto Glass Specifications (NAGS)*

Window Systems

- install residential window systems
- fabricate and install a light commercial ribbon window system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *training the apprentice in residential window types*
- *identifying the materials used in residential windows*
- *describing to and training the apprentice in the methods of installation and repair for residential windows*
- *identifying types and materials for commercial windows*
- *describing methods of window installation and repair in different commercial substrate construction*
- *training the apprentice in fabrication and installation of a light commercial ribbon window system*

Math and Drawing Interpretation 1

- solve basic math problems
- solve ratio, proportion and percentage problems
- calculate quantities of glazing materials
- interpret residential and light commercial drawings
- produce orthographic and isometric drawings

Mentors can assist the apprentice to prepare for this section of technical training by:

- *training the apprentice in the basic on-the-job calculations*
- *giving the apprentice an opportunity to use mathematical calculations to complete a task*
- *providing shop drawings and assisting with their interpretation*

Glass and Glass Fabrication 2

- perform the layout, fabrication and installation of mirrors
- recognize types of specialty glass and their applications
- cut glass to various shapes
- apply techniques for glass fabrication
- recognize the procedures for sandblasting, etching and film application on glass

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying types of mirrors and procedures for fabricating mirrors and installing them*
- *identifying tools and methods used to cut glass*
- *explaining the proper use of specific types of glass, i.e. tempered, laminate, semi-tempered, wired glass, coated glass*
- *describing the various procedures for the installation of specialty glass*
- *describing uses of various abrasives, coolants and lubricants used to cut and drill glass*
- *illustrating the removal of scratches from glass using a scratch polishing machine*
- *identifying methods for sand blasting glass*

Glazing and Service 2

- install and service residential glazing products
- describe service fundamentals for commercial glazing products
- troubleshoot and repair store front entrance systems
- remove and install auxiliary auto glass

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying sash types, sash preparation and glazing*
- *describing the theory of energy-efficient glazing*
- *describing the methods used and the necessary precautions when replacing store front glass*
- *identifying fastening devices used for glass*
- *illustrating the removal and installation of auxiliary auto glass, including code interpretation*

Construction Product Application

- install glazing compounds and sealants
- describe the concept of building envelope science

Mentors can assist the apprentice to prepare for this section of technical training by:

- *introducing the proper use of glazing compounds and sealants*
- *demonstrating installation of glazing compounds to wood and metal*

Frames and Door Systems

- fabricate and install a commercial frame and door system
- identify flashing and panels

Mentors can assist the apprentice to prepare for this section of technical training by:

- *providing metal installation manuals*
 - *allowing hands-on opportunities to assist in fabrication and installation of frames and glass*
 - *describing and practising the applications of flashing and panels*
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Math and Drawing Interpretation 2

- perform perimeter and area calculations related to trade based problems
- produce basic shop drawings
- perform drawing interpretation tasks relating to basic architectural drawings and specifications
- determine basic material requirements to complete a job

Mentors can assist the apprentice to prepare for this section of technical training by:

- *demonstrating the use of mathematical equations specific to job requirements*
- *assisting the apprentice in the production of basic shop drawings*
- *using shop drawings to interpret window and door locations, door hardware schedules, etc.*

Frame Systems 1

- identify aluminum framing components including finishes, properties and extrusions
- fabricate and install a single level curtain wall
- fabricate and install a basic frame system
- design and install flashings and panels

Mentors can assist the apprentice to prepare for this section of technical training by:

- *explaining the uses of different extrusions and hardware on job sites*
 - *describing types of curtain walls, anchors, structural requirement, expansion and sealing*
 - *fabricating a curtain wall*
 - *fabricating frames including transoms and side lights, using flush line material*
 - *assisting the apprentices to interpret, design, fabricate and install flashings and panels*
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Door Systems 1

- describe commercial door systems
- describe associated door hardware
- install an aluminum swing door
- install an all glass entrance system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying types and components of commercial door systems*
 - *supervising the apprentice in installing glass and glazing and performing service work*
 - *describing frameless door installation*
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Glazing and Service 3

- assess and repair a structural glazing system
- install a structural glazing system
- install common types of building envelope components

Mentors can assist the apprentice to prepare for this section of technical training by:

- *supervising the apprentice in performing structural glazing installation*
 - *troubleshooting structural glazing system malfunctions, and developing a repair plan*
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Sloped Glazing Systems

- install and repair sloped glazing systems
- describe the installation and repair of skylights
- install skylight system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying special considerations concerning slope glazing*
 - *describing project specifications from installation manuals*
 - *identifying anchoring requirements, procedures, drainage requirements and repair for sloped glazing systems*
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Math and Drawing Interpretation 3

- use design factors when designing glazing systems
- interpret architectural and structural drawings
- interpret project specifications
- produce a shop drawing
- generate material takeoffs

Mentors can assist the apprentice to prepare for this section of technical training by:

- *calculating design loads*
- *continuing exposure to shop drawing calculations*
- *assisting in training with blueprints on the job*
- *training the apprentice in determining quantities of material types and applying material costs*



Red Seal Programs and Specialty Products

- use Red Seal products used to challenge an Interprovincial examination
- use coaching skills when training an apprentice
- assess barrier free entrance system operation
- assess automatic door operations
- identify specialty products and emerging technologies in the glazing industry

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying and encouraging the apprentice in the use of Red Seal products to prepare for the Interprovincial examination*
 - *describing and training in barrier-free entrance systems*
 - *assisting the apprentice in assessing automatic door operations*
 - *training the apprentice in the specialty products and emerging technologies in the glazing industry*
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Frame Systems 2

- install curtain wall systems
- fabricate and install a multi-level curtain wall

Mentors can assist the apprentice to prepare for this section of technical training by:

- *identifying and describing curtain wall layouts and installation*
 - *identifying and describing types of building envelope membranes*
 - *assisting apprentice to fabricate and install curtain walls*
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Door Systems 2

- install specialty commercial doors
- install and service specialty door hardware
- fabricate and install a storefront frame system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *providing access to job specifications, installation manuals, specification books and wind load charts, and the use of all of the above*
 - *laying out the components of a swing door and frame*
 - *fabricating and installing a door frame*
 - *installing a door and hardware in the frame*
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Glazing and Service 4

- describe specialty glazing systems and their applications
- install specialty glazing systems
- install a building envelope system

Mentors can assist the apprentice to prepare for this section of technical training by:

- *training in glazing balustrades, floors and ceilings and smoke baffles*
 - *installing hinges, latch locks and panic exit devices*
 - *training in sequential building envelope installation procedures*
 - *interpreting drawings for a building envelope project*
 - *installing perimeter seals and flashings*
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Math and Drawing Interpretation 4

- generate a curtain wall shop drawing
- interpret a commercial drawing
- interpret project specifications
- estimate labour and material quantities for a given project
- manage an on-site commercial project

Mentors can assist the apprentice to prepare for this section of technical training by:

- *training in the design and procedures for creating a curtain wall frame*
- *assisting the apprentice in the interpretation of a commercial architectural drawing*
- *training the apprentice in estimating labour and material quantities for a project*
- *training of the apprentice in the management of an on-site project*

Consider apprenticeship training as an investment in the future of your company and in the future of your workforce. Ultimately, skilled and certified workers increase your bottom line.

Get involved in the apprenticeship training system. Your commitment to training helps to maintain the integrity of the trade.

Do you have employees who have been working in the trade for a number of years but don't have trade certification?

Contact your local apprenticeship office for details on how they might obtain the certification they need.

Saskatchewan Apprenticeship & Trade Certification Commission

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