Bricklayer

On-the-Job Training Guide

2023

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Recognition:
To promote transparency and consistency, portions of this document has been adapted from the 2021 Bricklayer Red Seal Occupational Standard (Employment and Social Development Canada).

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

Note: Bricklayer Apprenticeship Technical Training is now fully harmonized.

STRUCTURE OF THE ON-THE-JOB TRAINING GUIDE

To facilitate understanding of the occupation, this guide to course content contains the following sections:

Description of the Bricklayer trade: an overview of the trade's duties and training requirements.

Essential Skills Summary: an overview of how each of the eight essential skills is applied in this trade.

Elements of harmonization of apprenticeship training: includes adoption of Red Seal trade name, number of levels of apprenticeship, total training hours (on-the-job and in-school) and consistent sequencing of technical training content. Implementation for harmonization will take place progressively. Level one will be implemented in 2021/2022, level two 2022/2023 and level three 2023/2024.

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

DESCRIPTION OF THE BRICKLAYER TRADE

Bricklayers lay concrete block, brick, pre-cut stone and other materials in the construction or repairing of structures.

"Bricklayer" is this trade's official Red Seal occupational title approved by the CCDA. This standard covers tasks performed by bricklayers.

Bricklayers skills and abilities are in high demand across Canada. They build and repair walls, floors, arches, pavings, partitions, fireplaces, chimneys, smokestacks, furnaces, kilns and other structures. They work with materials such as brick, natural stone, manufactured stone, tiles, precast masonry panels, glass blocks, concrete blocks, light-weight insulated panels, other masonry units, insulation and membranes. They erect, install, maintain, repair and alter various masonry. The structures vary in complexity from a simple masonry walkway to an ornate exterior on a multi-level building.

Bricklayers use wheelbarrows and forklifts to transport materials. They use hand and power tools to cut and trim masonry units to required size. Trowels are used to spread mortar to bond layers of masonry units together. Measuring and layout tools such as a plumb line, level and laser level are used to ensure proper alignment.

Bricklayers work on industrial, commercial, institutional and residential buildings. They may specialize in stone work, restoration work or ornamental work. They may also specialize in installing refractories in high-temperature environments or installing corrosion resistant materials to line corrosive environments such as tanks and vessels.

Key attributes for people in this trade are manual dexterity, mechanical aptitude, the ability to problem solve and think sequentially, and the ability to work at heights. Bricklaying is physically demanding work and requires considerable effort in lifting heavy materials, climbing, bending, kneeling, working in confined spaces and working on scaffolding. Bricklayers have the advantage of developing their artistic abilities as they construct designs on different jobsites. They have an eye for detail in order to create accurate and aesthetically pleasing work.

Most of the work is performed outdoors exposing bricklayers to the elements. The winterization of jobsites allows the work to continue year round. Construction safety and accident prevention is a priority.

This standard recognizes similarities or overlaps with the work of other trades such as tilesetters, concrete finishers, carpenters, and drywall finishers and plasterers.

Experienced bricklayers may have opportunities to travel, advance to supervisory positions for masonry contractors or in other related fields such as construction management, estimating or building inspection. They may also become contractors.

Training Requirements: 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 1500 hours each year. Total trade time required is 6000 hours and at least 4 years in the trade.

There are three levels of technical training delivered by Saskatchewan Polytechnic in Saskatoon.

Level One: 8 weeks
Level Two: 8 weeks
Level Three: 8 weeks

Journeyperson to apprentice ratio for this trade is: 1:2

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 journeyperson'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 the inspecting, diagnosing, servicing, repairing, replacing and overhauling of all components of an automobile, light truck or light bus
- provide the opportunity for apprentices to service the above systems and vehicles
- further the apprentice's ability to interpret technical drawings and schematics
- ensure that the apprentice can troubleshoot, diagnose and repair the vehicle and its systems

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.

Entrance Requirements for Apprenticeship Training

Your grade twelve transcripts (with no modified classes) or GED 12 is your guarantee that you meet the educational entrance requirements for apprenticeship in Saskatchewan. In fact, employers prefer and recommend apprentices who have completed high school. This ensures the individual has all of the necessary skills required to successfully complete the apprenticeship program and receive journeyperson certification.

Individuals with "modified" or "general" classes in math or science do not meet our entry requirements. These individuals are required to take an entrance assessment prescribed by the SATCC.

English is the language of instruction in all apprenticeship programs and is the common language for business in Saskatchewan. Before admission, all apprentices and/or "upgraders" must be able to understand and communicate in the English language. Applicants whose first language is not English must have a minimum Canadian Language Benchmark Assessment of six (CLB6).

Note: A CLB assessment is valid for a one-year period from date of issue.

Designated Trade Name	**Math Credit** at the Indicated Grade Level❶	**Science Credit** at Grade Level
Bricklayer	Grade 10	Grade 10

❶ - (One of the following) WA – Workplace and Apprenticeship; or F – Foundations; or P – Pre-calculus, or a Math at the indicated grade level (Modified and General Math credits are not acceptable.).

*Applicants who have graduated in advance of 2015-2016, or who do not have access to the revised Science curricula will require a Science at the minimum grade level indicated by trade.

For information about high school curriculum, including Math and Science course names, please see: http://www.curriculum.gov.sk.ca/#

Individuals not meeting the entrance requirements will be subject to an assessment and any required training

ESSENTIAL SKILLS SUMMARY

Essential skills are needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.

Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine essential skills. These skills are used in nearly every occupation and throughout daily life in different ways.

A series of CCDA-endorsed tools have been developed to support apprentices in their training and to be better prepared for a career in the trades. The tools can be used independently or with the assistance of a tradesperson, trainer, employer, teacher or mentor to:

- understand how essential skills are used in the trades;
- learn about individual essential skills strengths and areas for improvement; and
- improve essential skills and increase success in an apprenticeship program.

The tools are available online or for order at: www.esdc.gc.ca/eng/jobs/les/profiles/index.shtml

The application of these skills may be described throughout this document within the skills and knowledge which support each sub-task of the trade. The most important essential skills for each sub-task have also been identified. The following are summaries of the requirements in each of the essential skills, taken from the essential skills profile. A link to the complete essential skills profile can be found at www.red-seal.ca.

READING

Bricklayers require strong reading skills to read a variety of documentation such as job specifications, manufacturers' directions for product preparation and application, job site, company and jurisdictional safety requirements, and correspondence from suppliers and contractors.

DOCUMENT USE

Bricklayers interpret blueprints, read assembly drawings and make sketches of items to be built. They complete forms such as time sheets, incident reports, request for information (RFI), personal safety information (PSI) and field level risk assessments (FLRA).

WRITING

Bricklayers use writing skills to complete documents such as lists of materials, incident reports, and time sheets. They may correspond in writing with co-workers regarding supplies or work to be done.

ORAL COMMUNICATION

Bricklayers talk with suppliers, delivery personnel, customers and co-workers, and co-ordinate activities with other trades. They give directions to apprentices, liaise with supervisors and participate in meetings.

NUMERACY

Bricklayers measure the length, height and width of structures to be built and calculate angles of arches when constructing openings. They estimate mix ratios by weight and volume. Bricklayers estimate the amount of time and material required to complete a job.

THINKING SKILLS

Bricklayers use problem solving skills to address issues that may arise on the job such as design changes or omissions. Bricklayers plan the materials and equipment they need for a job and schedule tasks according to priority, sequence and to meet the needs of other trades on site.

WORKING WITH OTHERS

Bricklayers usually work in a team environment although they may work alone on some jobs. Many jobs are done with a fellow worker. Therefore, they must cooperate and coordinate with others to ensure consistent work. Bricklayers may perform supervisory functions and guide or monitor the work performance of others.

DIGITAL TECHNOLOGY

Bricklayers may use digital devices to complete numeracy related tasks and to communicate with others. They may access online information posted by suppliers and manufacturers to stay current on industry trends and practices. Bricklayers may also access databases to retrieve forms such as change orders and to retrieve architectural drawings. Bricklayers may use computer controlled layout equipment such as surveying equipment and smart levels to measure distances and horizontal and vertical angles of brick structures.

CONTINUOUS LEARNING

Bricklayers learn continuously through experience and creativity on the job. They may attend sessions provided by manufacturers of new products. Bricklayers may also attend specialty in-person or online courses, for example safety or landscaping with bricks, blocks and stone, or reference pamphlets, booklets or manuals on specific topics. Bricklayers may need to expand their skills by getting additional certifications such as scaffold building, welding, hoisting and rigging and confined space.

ELEMENTS OF HARMONIZATION FOR APPRENTICESHIP TRAINING

At the request of industry, the Harmonization Initiative was launched in 2013 to *substantively align* apprenticeship systems across Canada by making training requirements more consistent in the Red Seal trades. Harmonization aims to improve the mobility of apprentices, support an increase in their completion rates and enable employers to access a larger pool of apprentices.

As part of this work, the Canadian Council of the Directors of Apprenticeship (CCDA) identified four main harmonization priorities in consultation with industry and training stakeholders:

1. Trade name
The official Red Seal name for this trade is Bricklayer.

2. Number of Levels of Apprenticeship
The number of levels of technical training recommended for the Bricklayer trade is three.

3. Total Training Hours during Apprenticeship Training
The total hours of training, including both on-the-job and in-school training for the Bricklayer trade is 6000.

4. Consistent sequencing of training content (at each level) using the most recent Occupational Standard

Implementation for harmonization took place progressively. Level one was implemented in 2021/2022, level 2 2022/2023 and level 3 2023/2024. See Appendix A for the finalized curriculum comparisons.

BRICKLAYER TASK MATRIX

This chart outlines the major work activities, tasks and sub-tasks from the 2021 Bricklayer Red Seal Occupational Standard. Each sub-task details the corresponding essential skill and level of training where the content is covered. *

The Task Matrix Chart will be updated every year until Harmonization implementation is complete. Implementation for harmonization took place progressively. Level one was implemented in 2021/2022, level 2 in 2022/2023 and level 3 in 2023/2024

*Sub-tasks with numbers in the boxes are where the content will be delivered in training. Harmonization for the Bricklayer trade has been fully implemented for each technical training level.

A - Performs common occupational skills — 12%

Task A-1 Performs safety-related functions	**A-1.01 Maintains safe work environment** 1	**A-1.02 Uses personal protective equipment (PPE) and safety equipment** 1		
Task A-2 Uses and maintains tools and equipment	**A-2.01 Maintains tools and equipment** 1	**A-2.02 Uses rigging, hoisting and lifting equipment** 1	**A-2.03 Uses access equipment** 1	
Task A-3 Uses scaffolding	**A-3.01 Erects scaffolding** 1	**A-3.02 Dismantles scaffolding** 1	**A-3.03 Maintains scaffolding** 1	
Task A-4 Organizes work	**A-4.01 Uses drawings and specifications** 1, 2, 3	**A-4.02 Plans daily tasks and activities** 1	**A-4.03 Prepares jobsite and materials** 1	**A-4.04 Protects surrounding areas** 1

Task A-5 Uses communication and mentoring techniques	A-5.01 Uses communication techniques 1	A-5.02 Uses mentoring techniques 3

B - Performs general masonry practices — 19%

Task B-6 Performs substrate preparation	B-6.01 Prepares vertical substrates and foundations 1	B-6.02 Applies parging 1	B-6.03 Installs anchoring/tie systems 1	B-6.04 Installs membrane and flashing 1	B-6.05 Installs insulation 1
Task B-7 Performs fundamental masonry tasks	B-7.01 Lays out wall and coursing 1	B-7.02 Finishes joints 1	B-7.03 Cleans new masonry surfaces 1	B-7.04 Seals masonry surfaces 1	
Task B-8 Uses mortars, grouts and adhesives	B-8.01 Mixes mortar, concrete, grout and adhesives 1, 2, 3	B-8.02 Uses mortars 1, 2, 3	B-8.03 Uses concrete and grout 1, 2, 3	B-8.04 Uses adhesives 1, 2, 3	

C - Builds masonry systems — 22%

Task C-9 Builds masonry walls	C-9.01 Builds non-load-bearing walls 1	C-9.02 Builds load-bearing walls 2
Task C-10 Builds horizontal masonry surfaces	C-10.01 Prepares horizontal substrate 3	C-10.02 Lays masonry units on horizontal surfaces 3

Task C-11 **Builds and installs prefabricated masonry**	**C-11.01 Builds prefabricated masonry** **2**	**C-11.02 Erects prefabricated masonry** **2**
Task C-12 Installs surface-bonded masonry units	**C-12.01 Prepares substrate for surface-bonded masonry units** **2**	**C-12.02 Applies surface-bonded masonry units** **2**

D – Builds natural stone systems — 10%

Task D-13 Builds natural stone walls	**D-13.01 Prepares natural stone** **2**	**D-13.02 Lays natural stone** **2**	**D-13.03 Damp cures walls** **2**
Task D-14 Performs mechanically-fastened natural stone cladding procedures	**D-14.01 Prepares substrate for cladding** **3**	**D-14.02 Prepares natural stone for cladding** **3**	**D-14.03 Installs natural stone cladding** **3**

E – Builds chimneys and fireplaces — 10%

Task E-15 **Builds chimneys**	**E-15.01 Builds foundation supports for chimneys** **3**	**E-15.02 Lays masonry units to build chimneys** **3**	**E-15.03 Installs flue lining** **3**	**E-15.04 Installs related flashings** **3**	**E-15.05 Installs caps** **3**

Task E-16 Builds fireplaces	E-16.01 Builds foundation for hearth, firebox, backup material and veneer 3	E-16.02 Builds hearth, firebox and backup 3	E-16.03 Installs damper 3	E-16.04 Builds smoke chamber 3	E-16.05 Prepares existing fireplace for insert 3
	E-16.06 Faces fireplaces and inserts 3				

F - Installs refractories and corrosion resistant materials 9%

Task F-17 Installs and maintains refractories	F-17.01 Prepares for installation of refractories and accessories 3	F-17.02 Prepares mortar for refractories 3	F-17.03 Removes existing refractories 3	F-17.04 Installs refractories 3	F-17.05 Repairs refractories 3
Task F-18 Installs and maintains corrosion resistant materials	F-18.01 Prepares for installation of corrosion resistant materials and accessories 3	F-18.02 Prepares mortar for corrosion resistant materials 3	F-18.03 Removes existing corrosion resistant materials 3	F-18.04 Installs corrosion resistant materials 3	F-18.05 Repairs corrosion resistant materials 3

G - Performs restoration 11%

Task G-19 Rebuilds masonry work	G-19.01 Disassembles unit masonry 2	G-19.02 Prepares restoration work area 2	G-19.03 Reinstalls masonry and accessories 2		

Task G-20 Repairs and cleans existing masonry work	G-20.01 Removes deteriorated masonry units 2, 3	G-20.02 Repoints joints 2, 3	G-20.03 Repairs masonry units 2, 3	G-20.04 Reinstalls masonry units and accessories 2, 3	G-20.05 Cleans existing masonry surfaces 2, 3

H – Performs additional masonry — 7%

Task H-21 Installs glass blocks	H-21.01 Prepares work area for installation of glass blocks 2	H-21.02 Lays glass blocks 2			
Task H-22 Installs ornamental and sculpted masonry	H-22.01 Prepares for installation of ornamental and sculpted masonry units 3	H-22.02 Installs ornamental and sculpted masonry units 3			
Task H-23 Builds arches	H-23.01 Prepares location for installation of arch 2,3	H-23.02 Builds template 2,3	H-23.03 Places template 2,3	H-23.04 Installs arch masonry units 2,3	H-23.05 Removes template 2,3

TRAINING PROFILE CHART

This Training Profile Chart represents Saskatchewan Apprenticeship and Trade Certification Commission (SATCC) technical training at the topic level.

Level One	Transcript Code	Hours
Construction Documents 1	BRPT 124	18
Tools and Equipment	EQPT 134	24
Masonry Materials	MATE 121	12
Mortars Grouts and Adhesives	MSON 124	24
Layout and Fundamental Tasks	MSON 104	18
Building Enclosure & Substrate Preparation	MSON 105	24
General Safety & Job-site Communication	SFTY 121	18
Scaffolding	SCAF 121	12
Masonry Systems 1	MSON 106	90
		240

Level Two	Transcript Code	Hours
Construction Documents 2	BPRT 221	30
Basic Masonry Arches	CNST 203	42
Stone Masonry	MSON 200	42
Surface Bonded Masonry	MSON 204	30
Masonry Restoration 1	MSON 205	36
Masonry Systems 2	MSON 206	60
		240

Level Three	Transcript Code	Hours
Construction Documents 3	BPRT 320	24
Refractories and Corrosion Resistant Materials	CNST 323	30
Masonry Restoration 2	MSON 327	12
Advanced Masonry Arches	CNST 324	24
Project Planning	PROJ 301	24
Chimney and Fireplace Construction	CNST 325	60
Masonry Systems 3	MSON 330	30
Masonry Review	REV 320	30
Mentoring	MENT 300	6
		240

ON-THE-JOB AND IN-SCHOOL TRAINING CONTENT FOR THE BRICKLAYER 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 — 8 weeks — 240 hours

Construction Documents 1 — 18 hours

- identify construction documents
- interpret measurement systems and scales
- identify construction drawing language
- compare various types of drawings
- perform basic math used in construction

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

- *reviewing on-site prints and construction drawings discussing what different symbols mean*
- *explaining and demonstrating measurements and scales*
- *applying trade math to various tasks associated with the work*
- *observing the apprentice's ability to translate blueprints to a worksite*

Tools and Equipment — 24 hours

- identify measuring and layout tools
- identify masonry hand tools
- identify portable power tools used in the masonry trade
- identify tools and equipment used to mix mortar and grout
- identify tools and equipment used for moving materials
- operate tools and equipment used in the masonry trade
- describe the safe use of powder actuated tools

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

- *spending time explaining what each tool is used for and demonstrating the proper use*
- *making the apprentice perform a shop inventory to learn the proper names of materials and tools*
- *observing and advising the apprentice of proper uses and applied techniques when using tools and equipment*
- *demonstrating the safe set up, use and storage of powder actuated tools*

Masonry Materials — 12 hours

- describe clay products
- describe concrete products
- describe additional masonry products

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

- explaining the different types of masonry products and their proper uses
- supervising the apprentice and allowing them to make the correct choices of which products to use

Mortars, Grouts and Adhesives — 24 hours

- identify the characteristics and properties of mortar
- mix mortar to a workable state
- perform mortar joint finishes
- describe concrete design and mixing
- identify adhesives used in masonry construction
- identify building code requirements for mortar and concrete

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

- *explaining the different types of mortars grouts and adhesives*
- *displaying the proper use, applications and procedures of mortars, grouts and adhesives*
- *showing the apprentice how to properly mix mortars and grouts*
- *observing the apprentice's ability to work with mortar grout and adhesives*

Layout and Fundamental Tasks — 18 hours

- practice job-site setup
- perform building layout procedures
- identify masonry unit positions and bond patterns
- describe procedures for masonry wall layout
- describe cleaning and sealing new masonry surfaces

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

- *showing the apprentice how to properly prepare and layout a jobsite*
- *displaying and observing the proper set up, storage and use of a levels*
- *identifying the different masonry unit positions and bond patterns*
- *performing wall layouts and observing the apprentice's ability to do so*
- *having the apprentice clean and seal new masonry surfaces*

Building Enclosure & Substrate Preparation — 24 hours

- describe substrates, foundations and parging procedures
- identify masonry anchors and ties
- describe the building enclosure
- identify air barriers
- identify vapour barriers
- identify insulations

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

- *teaching the processes of parging procedures*
- *familiarizing the apprentice with The National Building Code Regulations as it applies to the scope of work*
- *identifying the different types of masonry anchors and ties*
- *showing the apprentice the types of materials and the proper application/ installation as it applies to air barriers, vapour barriers and insulations*
- *explaining the purpose of building enclosures*
- *allowing the apprentice to make the correct decisions as it applies to procedures of the building envelope*

General Safety and Jobsite Communications — 18 hours

- identify occupational health and safety regulations
- select personal protective equipment
- identify fall protection equipment
- identify unsafe working environments and hazard control
- practice hazard identification and control
- identify WHMIS 2015 (GHS)
- use effective communication techniques

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

- *attending shop safety meetings*
- *insisting on appropriate work clothes and personal protective equipment*
- *having the apprentice attend training for WHMIS*
- *taking on the responsibilities of a mentorship role and guiding the apprentice through safe work practices*

Scaffolding — 12 hours

- describe the safe use of ladders and scaffolding
- describe the erection, maintenance, and dismantling of metal access scaffolds
- identify basic rigging operations

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

- *displaying safe ladder practices*
- *helping the apprentice identify the different types of scaffolding*
- *showing the apprentice proper assembly, dismantling and storage of scaffolding*
- *teaching the apprentice uses of hand signals used for equipment operators*
- *raising awareness of weight distribution and the techniques of rigging and hoisting*
- *observing the apprentice's ability to work with scaffolding*

Masonry Systems 1 — 90 hours

- identify masonry wall systems
- identify masonry wall elements
- identify ornamental bond patterns
- identify ornamental bond patterns
- identify building code requirements for masonry wall systems
- describe procedures for laying masonry units
- construct various wall systems

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

- *identifying and constructing various types of wall systems*
- *familiarizing the apprentice with the different types of wall ties and anchors*
- *building different types of columns, piers and pilasters*
- *explaining the proper uses of beams, lintels and sills as it pertains to their placement and load distributions*
- *identifying the building code requirements for masonry systems*
- *going through the proper steps of wall layout procedures*
- *exposing the apprentice to as many different types of wall systems as it applies to the trade and scope of work*
- *observing the apprentice lay out walls*
- *observing the apprentice's ability to build wall systems, columns, piers and pilasters*

Level Two — 8 weeks — 240 hours

Construction Documents 2 — 30 hours

- interpret various types of drawings
- use residential construction documents
- solve geometric problems in the construction industry
- perform material estimating procedures

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

- *reviewing on-site prints and construction drawings*
- *applying the blueprints to the construction site*
- *applying trade math to various tasks associated with the work*
- *observing the apprentice's ability for quantitative takeoff*

Basic Masonry Arches — 42 hours

- identify types of arches and their components
- calculate arch geometries
- construct a temporary arch support
- construct a rough masonry arch

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

- *exposing the apprentice to a wide array of arches*
- *showing the apprentice how to perform and apply mathematics to arches*
- *having the apprentice apply proper shoring and supports to arches*
- *observing the apprentice's ability to building arches*

Stone Masonry — 42 hours

- identify classifications of stone
- prepare stone for installation
- identify techniques for laying stone
- construct a natural full bed stone wall

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

- *using a wide array of stone material*
- *allowing the apprentice to prepare the stone for application*
- *displaying the different techniques for laying stone while following the rules of bonding and pattern practices*
- *observing the apprentice's ability to perform natural stone building techniques and the use of proper finishings applied for curing*

Surface Bonded Masonry — 30 hours

- identify surface bonded masonry
- prepare substrate for surface bonded masonry
- apply surface bonded masonry units

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

- *familiarizing the apprentice with weatherproofing components and backing material*
- *demonstrating the procedures to prepare substrates for surface bonded masonry*
- *observing the apprentice's ability to apply surface bonded masonry*

Masonry Restoration 1 — 36 hours

- analyze restoration requirements for existing buildings
- demonstrate restoration procedures

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

- *assessing the requirements of the restoration task with the apprentice and determine an action plan*
- *setting up a safe work area*
- *allowing the apprentice to set up shoring and supports with an inspection to follow working with the apprentice at all stages of the restoration and observing their ability to perform the required tasks of demolition, salvaging materials, cleaning, restoring and finishing*

Masonry Systems 2 — 60 hours

- identify load-bearing masonry assemblies
- identify reinforced masonry principles
- construct reinforced masonry
- identify prefabricated masonry
- construct glass block masonry

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

- *familiarizing the apprentice with load-bearing walls and the importance to the structure*
- *teaching the apprentice about installing reinforcements, lintels, braces and retaining walls.*
- *working with the apprentice to build a load-bearing wall*
- *teaching the apprentice about glass block and prefabricated masonry and how to properly install it*

Level Three — 8 Weeks — 240 Hours

Construction Documents 3 — 24 hours

- interpret specifications and contracts
- interpret drawings and details for renovations
- interpret institutional, commercial and industrial type drawings

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

- *allowing the apprentice to identify and interpret drawings and specifications*
- *helping the apprentice draw sketches*
- *taking a step by step process when analyzing commercial and industrial drawings*

Refractories and Corrosion Resistant Materials — 30 hours

- define refractory safety procedures.
- identify common refractory vessels and their use
- identify refractory materials and accessories
- Identify corrosion resistant materials and accessories
- Describe the removal and repair of refractory and corrosion resistant materials
- Describe installation procedures for refractory and corrosion resistant materials

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

- *explaining the uses of refractories and the safety measures that apply*
- *selecting the proper tools to work on refractories*
- *exposing the apprentice to different types of refractories*
- *assuring that the material used is suited for the construction of refractories and that the apprentice is made aware of its importance*
- *working with the removal, repair and installation of refractories.*
- *observing the apprentices work in regard to refractories.*

Masonry Restoration 2 — 12 hours

- describe restoration procedures
- perform restoration procedures

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

- *monitoring the apprentice when deciding a course of action, allow the apprentice to decide the best methods*
- *setting up a safe work area*
- *allowing the apprentice to set up shoring and supports with an inspection to follow*
- *working with the apprentice at all stages of the restoration and observing their ability to perform the required tasks of demolition, salvaging materials, cleaning, restoring and finishing*

Advanced Masonry Arches — 24 hours

- Identify procedures for constructing gauged arches
- Review arch terminology and arch types

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

- *helping determine the type, location, span, rise and depth of the arch template*
- *allowing the apprentice to properly set up shoring and support systems*
- *observing the apprentice remove support systems, debris and shims*

Project Planning **24 hours**

- identify quantity survey procedures for masonry construction
- identify procedures for calculating labour costs
- prepare a job cost estimate

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

- *Observing the apprentice schedule, sequence and estimate allotted time for tasks*
- *Observing the apprentice's ability to perform a quantity takeoff and make an accurate estimate*

Chimney and Fireplace Construction **60 hours**

- describe chimneys
- identify components of masonry fireplaces
- identify building code requirements for masonry chimneys and fireplaces
- construct a masonry fireplace and chimney

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

- *working on many different types of chimneys and fireplaces*
- *familiarizing the apprentice with chimney layouts, reinforcing steel, proper connectors, clean-outs, flue liners and caps*
- *referring the national building code when constructing chimneys and fireplaces*
- *creating proper foundations to support fireplaces of all types*
- *showing the proper procedures to building fireplaces including laying firebricks, installing ash dump, air intake and anchoring systems*
- *installing mantels, lintels and accessories*
- *assembling dampers and building smoke chambers*
- *observing the apprentice's ability to build fireplaces and chimneys*

Masonry Systems 3 **30 hours**

- describe horizontal masonry construction
- construct horizontal masonry
- describe natural stone cladding systems
- describe installation procedures for sculpted and ornamental masonry

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

- *working on horizontal masonry construction*
- *allowing the apprentice to construct horizontal masonry layout patterns*
- *familiarizing the apprentice with natural stone cladding systems*
- *installing ornamental and sculpted masonry*
- *observing the apprentice's ability to perform these tasks*

Masonry Review **30 hours**

- review common occupational skills
- review general masonry practices
- review masonry systems
- review natural stone systems
- review chimneys and fireplaces
- review refractories and corrosion resistant materials
- review restoration
- review additional masonry

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

- *exposing the apprentice to all aspects and essential skills of the bricklayer trade*

Mentoring **6 hours**

- describe mentoring techniques
- use mentoring techniques

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

- *teaching the apprentice to the best of their abilities the essential skills required of the bricklayer trade*
- *providing the highest standard expected of a journeyperson in the bricklayer trade*
- *setting an example by being approachable, willing to teach and available for when an apprentice will need guidance*

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.

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