

APPRENTICESHIP & CERTIFICATION

Study Guide Bricklayer




Newfoundland
Labrador

Apprenticeship and Certification

Study Guide

Bricklayer

(Based on 2016 NOA)

Government of Newfoundland and Labrador
Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division

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Introduction

This Study Guide has been developed by the Newfoundland and Labrador Department of Advanced Education, Skills and Labour, Apprenticeship and Trades Certification Division, to assist apprentices and trade qualifiers as they prepare to write the Interprovincial (IP) Red Seal Exam. IP Exams are available for all Red Seal trades. For a list of Interprovincial trades please refer to the Department of Advanced Education, Skills and Labour website:

<https://www.aesl.gov.nl.ca/app/trades.html>.

Some of the specific goals of this guide are:

- ⇒ to help you understand the skills and knowledge that might be covered on the exam
- ⇒ to help you identify your strengths and weaknesses
- ⇒ to provide organization and structure for a course of study
- ⇒ to provide a list of resources to help you with your study plan
- ⇒ to support and supplement the teaching and learning process

This study guide outlines the theoretical portion of the program. The intent is not to replace technical training provided under the guidance of instructors. Rather, it is a tool to be used in conjunction with formal training.



Exam Process

Before the Exam

You must contact the nearest Apprenticeship and Trades Certification Divisional office to make request to write the IP Red Seal exam (*See Appendix A for a list of regional offices*). Upon approval, the Apprenticeship Program Officer (APO) will notify you of your eligibility to write the exam, and provide you with scheduling information. If you require special accommodations due to a disability or language barrier, please contact your regional office for information on applying for this service.

During the Exam

You must bring:

- personal identification such as a photo or signature ID or valid Newfoundland and Labrador driver's license
- your notification letter

The following will be provided:

- a calculator (*see Appendix B for calculator information*)
- all other items required such as pencils, scrap paper, etc.

Important Note:

Personal cell phones, calculators, or other electronic equipment are NOT allowed into the exam room. If you do bring them, they will be stored away and returned to you when you have completed the exam.

After the Exam

Results will be mailed to you approximately seven to ten days after completion of the exam. All necessary instructions and information will be provided in the results letter.

The percentage mark you obtained will be provided. You will also be given a section by section breakdown, showing how many questions were in each section, as well as the number of questions in each section you completed successfully.

If you are successful in obtaining a 70% or more on your exam, you will be issued a Newfoundland and Labrador Certificate of Qualification with a Red Seal endorsement.

Exam Format

All IP Red Seal exams are written in multiple-choice format. Each exam has between 100 and 150 questions. A multiple choice question consists of a stem (a complete question) followed by four options (A, B, C, D). The stem contains all the information necessary to answer the question. The options consist of the one correct answer and three “distracters.” Distracters are incorrect. (See Appendix C for a sample answer sheet).

IP Red Seal exams contain three types of questions:

Level 1 Knowledge and Recall

Questions at this level test your ability to recall and understand definitions, facts, and principles.

Level 2 Procedural and Application

Questions at this level test your ability to apply your knowledge of procedures to a new situation.

Level 3 Critical Thinking

Questions at this level test your ability to interpret data, solve problems and arrive at valid conclusions.

Level 1 Examples:

1. When building a brick veneer wall, which types of mortar should be used?
 - A. Type M or K.
 - B. Type S or N.
 - C. Type K or O.
 - D. Type S or M.



2. When attaching wall ties to a wood frame structure, which type of fastener is used?

- A. Common nail.
- B. Carriage bolt.
- C. Wood screw.
- D. Machine screw.



3. Which chisel is used for dressing the stone edges?

- A. Comb.
- B. Point.
- C. Pitch.
- D. Plug.



Level 2 Examples:

1. If a room is 12 m x 9 m, what is the diagonal measurement in order for the room to be square?

- A. 9 m.
- B. 12 m.
- C. 13 m.
- D. 15 m.



2. What is the procedure to mixing a muriatic acid solution for cleaning brick?

- A. Mix the water into the acid.
- B. Mix the acid into the water.
- C. Mix the acid into the soapy water solution.
- D. Mix the soapy water solution into the acid.



3. How many standard blocks are required per course on a wall that is 7 200 mm long?

- A. 16.
- B. 18.
- C. 32.
- D. 36.



Level 3 Examples:

1. When using flagstone, which has coverage of 1.5 m²/ t, how much stone is required for a patio 2 000 m. x 4 000 m?

- A. 2.3 t.
- B. 4.0 t.
- C. 5.3 t.
- D. 12.0 t.



2. Concrete block is laid out so that each course gauges at 200 mm. What will be the height of the wall after 26 courses?

- A. 2.6 m.
- B. 3.8 m.
- C. 4.2 m.
- D. 5.2 m.



3. What is the minimum height above the chimney cap that chimney liners will extend?

- A. 25 mm.
- B. 38 mm.
- C. 50 mm.
- D. 75 mm.



Source of Questions:

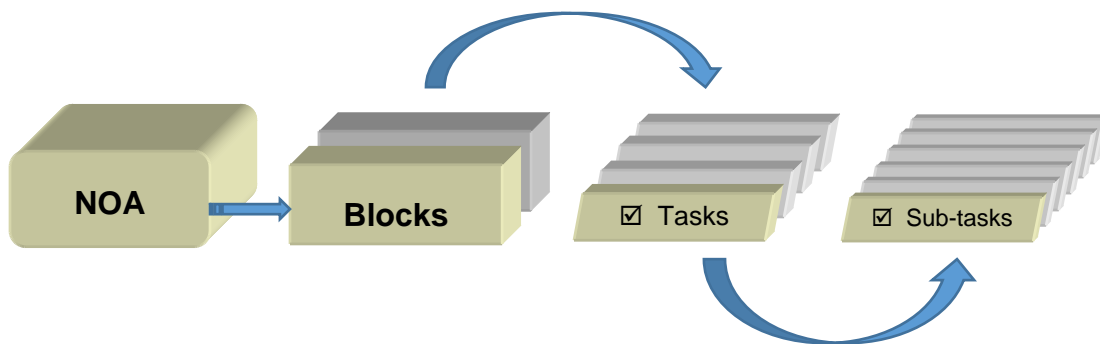
www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=36

Exam Content

Understanding the *National Occupational Analysis (NOA)*

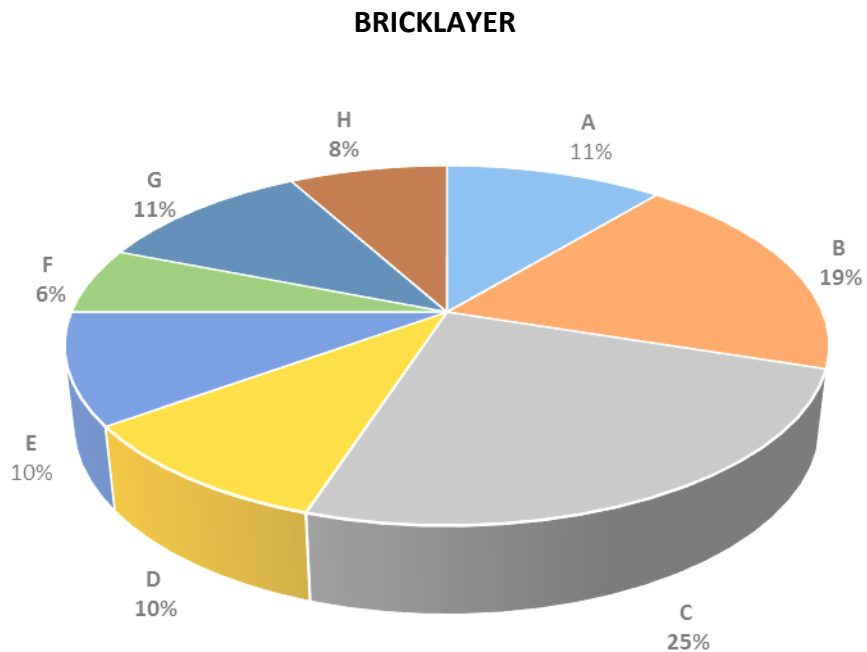
The NOA is a document used for Red Seal trades that describes the knowledge, skills and abilities required by a fully competent tradesperson working in that trade. The content for the Bricklayer IP Red Seal exam is based on the 2016 NOA. The NOA is an excellent tool to use as you study for the Red Seal exam. NOAs can be found at www.red-seal.ca.

NOA material is organized into major content areas called **BLOCKS**. The blocks are further broken down into **TASKS** and **SUB-TASKS**.



NOA Pie Chart

The NOA Pie Chart presents the block percentages in the form of a pie chart which tells you the approximate number of questions from each block. For example, 11% of the questions on the **Bricklayer** Exam will be based on **Block A**.



Block Titles			
Block A	Common Occupational Skills	Block E	Chimneys and Fireplaces
Block B	General Masonry Practices	Block F	Refractories and Corrosion Resistant Materials
Block C	Masonry Systems	Block G	Restoration
Block D	Natural Stone Systems	Block H	Additional Masonry

Exam Breakdown

The **Bricklayer** exam currently has 125 questions. The following table shows a breakdown of the number of questions that come from each NOA block. It is important to note that the exact number of questions can change at any time. When you are ready to write your exam, you may contact your regional office to verify the number of questions (See Appendix A).

		# of Questions
Block A	Common Occupational Skills	13
Task 1	Performs safety-related functions	
Task 2	Uses and maintains tools and equipment	
Task 3	Uses scaffolding	
Task 4	Organizes work	
Block B	General Masonry Practices	23
Task 5	Performs substrate preparation	
Task 6	Performs Fundamental Masonry Tasks	
Task 7	Uses Mortars, Grouts and Adhesives	
Block C	Masonry Systems	31
Task 8	Builds masonry walls	
Task 9	Builds horizontal masonry surfaces	
Task 10	Builds and installs prefabricated masonry units	
Task 11	Installs surface-bonded masonry units	
Block D	Natural Stone Systems	13
Task 12	Builds natural stone walls	
Task 13	Installs natural stone cladding	
Block E	Chimneys and Fireplaces	12
Task 14	Builds chimneys	
Task 15	Builds fireplaces	
Block F	Refractories and Corrosion Resistant Materials	8
Task 16	Installs and Maintains refractories	
Task 17	Installs and maintains corrosion resistant materials	
Block G	Restoration	13
Task 18	Rebuilds masonry work	
Task 19	Repairs and cleans existing masonry work	
Block H	Additional Masonry	12
Task 20	Installs glass blocks	
Task 21	Installs ornamental and sculptured masonry	
Task 22	Builds arches	
	Total	125

NOA Sub-tasks

The following *NOA Task Profile Checklist* outlines the blocks, tasks and sub-tasks for your trade. The IP Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the NOA. This chart can be used to review your current knowledge. You can review by placing a checkmark (✓) next to those you understand fully.

Place your focus on those you do not understand and study them until you are comfortable with the material. Think of possible questions in that particular content area.

The NOA also contains a list of “supporting knowledge and abilities” for each sub-task. They are the skills and knowledge you must have to perform a sub-task. The supporting knowledge and abilities identified under each sub-task will be very helpful as you review. The list can be found in the NOA for your trade.

**Task Profile Checklist
Based on 2016 NOA
Bricklayer**

Block A: Common Occupational Skills

Task 1: Performs safety-related functions

- Sub-Tasks*
- Maintains safe work environment
 - Uses personal protective equipment (PPE) and safety equipment

Task 2: Uses and maintains tools and equipment

- Sub-Tasks*
- Maintains tools and equipment
 - Uses rigging, hoisting and lifting equipment
 - Uses access equipment

Task 3: Uses scaffolding

- Sub-Tasks*
- Erects scaffolding
 - Dismantles scaffolding
 - Maintains scaffolding

Task 4: Organizes work

- Sub-Tasks*
- Uses drawings and specifications
 - Plans daily tasks and activities
 - Prepares job site and materials
 - Protects surrounding areas

Block B: General Masonry Practices

Task 5: Performs substrate preparation

Sub-Tasks

- Prepares vertical substrates and foundations
- Applies parging
- Installs anchoring/tie systems
- Installs membrane and flashing
- Installs insulation

Task 6: Performs fundamental masonry tasks

Sub-Tasks

- Lays out wall and coursing
- Finishes joints
- Cleans new masonry surfaces
- Seals masonry surfaces

Task 7: Uses mortars, grouts and adhesives

Sub-Tasks

- Mixes mortar, concrete, grout and adhesives
- Uses mortars
- Uses concrete and grout
- Uses adhesives

Block C: Masonry Systems

Task 8: Builds masonry walls

Sub-Tasks

- Builds nonload-bearing walls
- Builds loadbearing walls

Task 9: Builds horizontal masonry surfaces

Sub-Tasks

- Prepares horizontal substrate
- Lays masonry units on horizontal surfaces

Block C: Masonry Systems (Cont'd)

Task 10: Builds and installs prefabricated masonry units (NOT COMMON CORE)

Sub-Tasks

- Builds prefabricated masonry (NOT COMMON CORE)
- Erects prefabricated masonry

Task 11: Installs surface-bonded masonry units

Sub-Tasks

- Prepares substrate for surface-bonded masonry units
- Applies surface-bonded masonry units

Block D: Natural Stone Systems

Task 12: Builds natural stone walls

Sub-Tasks

- Prepares natural stone
- Lays natural stone
- Damp cures walls

Task 13: Installs natural stone cladding

Sub-Tasks

- Prepares substrate for cladding
- Prepares natural stone for cladding
- Installs natural stones

Block E: Chimneys and Fireplaces

Task 14: Builds chimneys

Sub-Tasks

- Builds foundation supports for chimneys
- Lays masonry units to build chimneys
- Installs flue lining
- Installs related flashings
- Installs caps

Task 15: Builds fireplaces

Sub-Tasks

- Builds foundation for hearth, firebox, backup material and veneer
- Builds hearth, firebox and backup
- Installs dampers
- Builds smoke chambers
- Prepares existing fireplace for insert
- Faces fireplaces and inserts

Block F: Refractories and Corrosion Resistant Materials

Task 16: Installs and maintains refractories

Sub-Tasks

- Prepares for installation of refractories and accessories
- Prepares mortar for refractories
- Removes existing refractories
- Installs refractories
- Repairs refractories

Task 17: Installs and maintains corrosion resistant materials

Sub-Tasks

- Prepares for installation of corrosion resistant materials and accessories
- Prepares mortar for corrosion resistant materials
- Removes existing corrosion resistant materials
- Installs corrosion resistant materials
- Repairs corrosion resistant materials

Block G: Restoration

Task 18: Rebuilds masonry work

Sub-Tasks

- Disassembles unit masonry
- Prepares restoration work area
- Reinstalls masonry and accessories

Task 19: Repairs and cleans existing masonry work

Sub-Tasks

- Removes deteriorated components
- Repoints joints
- Repairs masonry units
- Reinstalls masonry units and accessories
- Cleans existing masonry surfaces

Block H: Additional Masonry

Task 20: Installs glass blocks

Sub-Tasks

- Prepares work area
- Lays glass blocks

Task 21: Installs ornamental and sculpted masonry

Sub-Tasks

- Prepares for installation of ornamental and sculpted masonry
- Installs ornamental and sculpted masonry units

Task 22: Builds arches

Sub-Tasks

- Prepares location
- Builds template
- Places template
- Installs arch masonry units
- Removes template

Create a Study Plan

As you prepare for your exam, it is important to plan a schedule. The following two tables will help you stay on track.

The first table is a **“Weekly Study Plan.”** In this table list the areas you will focus your study for each day. You should include items you need to review as well as items you need to study. Remember, more time will be needed for study in areas you find difficult, whereas you may only require review in areas you are more familiar with. As you work through the NOA sub-task list you can start to fill in this table.

The second table is a **“Study Time Table.”** It is important to create a study schedule where you determine the best days of the week and times of day for you to study.

Print several copies of these tables and fill out for each week of study. It is important to stick to your study schedule.

Weekly Study Plan for Week of: _____

	Area of Study 1	Area of Study 2	Area of Study 3	Area of Study 4	Area of Study 5	Area of Study 6
Mon.						
Tues.						
Wed.						
Thu.						
Fri.						
Sat.						
Sun.						

Study Time Table for Week of: _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 AM - 9:00 AM							
9:00 AM - 10:00 AM							
10:00 AM - 11:00 AM							
11:00 AM - 12:00 Noon							
12:00 Noon - 1:00 PM							
1:00 PM - 2:00 PM							
2:00 PM - 3:00 PM							
3:00 PM - 4:00 PM							
4:00 PM - 5:00 PM							
5:00 PM - 6:00 PM							
6:00 PM - 7:00 PM							
7:00 PM - 8:00 PM							

Resources - Websites

Study information can be drawn from a variety of sources. A sample list of study materials (websites and books) is provided below. These and other helpful resources may be found in a local college bookstore, on the internet, or at your place of employment. You may also be able to borrow them from an apprentice or journey person in your trade.

Study Strategies and Exam Preparation Guide

The *Study Strategies & Exam Preparation Guide* is used in conjunction with this study guide. It provides direction and information on such areas as study habits, test preparation and test taking techniques.

Exam Preparation Guide: https://www.aesl.gov.nl.ca/app/publications/exam_prep_guide.pdf

Plan of Training (POT)

A *Provincial Plan of Training* details the full scope of learning for a particular occupation, including both technical training competencies and industry experiences necessary to write an IP Red Seal exam (and complete the requirements for Red Seal Certification), or to write a provincial examination. The Plan of Training is based on the NOA.

POT Website: <https://www.aesl.gov.nl.ca/app/plans.html>

Red Seal Website

National Occupational Analysis - The NOA is a document used for Red Seal trades that describes the knowledge and abilities required by a fully competent tradesperson working in that trade. The content for the IP exam is based on the NOA.

Red Seal Website: <http://www.red-seal.ca>

Bricklayer PRACTICE Exam

This is **NOT** an IP exam. This is a practice exam provided by the Inter-provincial Red Seal Standards Program. It was developed using similar question types to that of a Red Seal exam. The exam is intended to be used for self-assessment in preparation for writing an IP Exam.

Practice Exam Website:

<http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=36>

Glossary of Terms

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP Exam!

http://www.red-seal.ca/trades/bricklayers/2011n.4.1_.1ppb_gl.4ss.1ry-eng.html

Acronyms

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP Exam!

http://www.red-seal.ca/trades/bricklayers/2011n.4.1_.1ppc_.1cr.4nym-eng.html

Tools and Equipment

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP Exam!

http://www.red-seal.ca/trades/bricklayers/2011n.4.1_.1pp.1_t.4.4ls-eng.html

Resources – Book List

You can use this list to help you obtain information on specific topics. It is not necessary to use these books specifically, as you may find others that will be equally beneficial.

If you wish to obtain any of the resources listed below, here is the reference information:

- Masonry, Level 1*, 3rd Edition, 2005, Pearson Prentice, ISBN 0132287188
- Modern Masonry*, 2003, Kicklighter, C., The Goodheart-Wilcox Inc., ISBN 9781566379632
- Masonry, Level 2*, 3rd Edition, 2006, Prentice Hall, ISBN 0131091697

Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write an IP Red Seal Exam. This does not mean the Department of Advanced Education, Skills and Labour, Newfoundland and Labrador endorses the material or that these are recommended as the best resources. There may be other resources of equal or greater value to an individual preparing for an IP Red Seal exam. The Department of Advanced Education, Skills and Labour has no control over the content of external textbooks and websites listed, and no responsibility is assumed for the accuracy of the material.

Conclusion

We hope this guide has provided you with some useful tools as you prepare for your IP Red Seal exam. If you have any questions regarding your IP Red Seal exam please contact your regional office (*see Appendix A for a list of regional offices*).

We appreciate your comments and feedback regarding the usefulness of this study guide. If you have any comments or suggestions, we welcome your feedback. The feedback form at the end of this guide can be used for this purpose.

Appendix A: Regional Offices

If you have any questions regarding your IP Red Seal exam, please contact one of the following regional offices:

Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division
Toll Free: 1-877-771-3737
<https://www.aesl.gov.nl.ca/app/>

Corner Brook
1-3 Union Street Aylward Building, 2 nd Floor Corner Brook, NL A2H 5M7
Telephone: (709) 637-2366 Facsimile: (709) 637-2519

Grand Falls-Windsor
42 Hardy Avenue Grand Falls-Windsor, NL A2A 2J9
Telephone: (709) 292-4215 Facsimile: (709) 292-4502

Clarenville
45 Tilley's Road Clarenville, NL A5A 1Z4
Telephone: (709) 466-3982 Facsimile: (709) 466-3987

St. John's
P.O. Box 8700 1170 Topsail Road Mount Pearl, NL A1B 4J6
Telephone: (709) 729-2729 Facsimile: (709) 729-5878

Happy Valley – Goose Bay
163 Hamilton River Road Burse Building Happy Valley – Goose Bay, NL A0P 1E0
Telephone: (709) 896-6348 Facsimile: (709) 896-3733

Appendix B: Calculator Use

The picture below shows a calculator with the same functions as the one you will be provided with during your exam. It is advisable to borrow or purchase one with similar functions so that you can familiarize yourself with it before you write your exam.



Appendix C: Answer Sheet Example

With your exam you will be given an answer sheet similar to the one below. When answering multiple choice questions be sure to fill the circle completely and fill the circle that corresponds to the question on the exam.

Dual readhead scanner required to score this sheet

KEY ID
 A B C D

SCORING & PRINTING OPTIONS:
 RESCORE MULTIPLE ANSWER SCORING
 This sheet always uses the "Total Only" scoring option.

FEED IN THIS DIRECTION ↑

1 T F A B C D E	26 T F A B C D E	51 T F A B C D E	76 T F A B C D E
2 A B C D E	27 A B C D E	52 A B C D E	77 A B C D E
3 A B C D E	28 A B C D E	53 A B C D E	78 A B C D E
4 A B C D E	29 A B C D E	54 A B C D E	79 A B C D E
5 A B C D E	30 A B C D E	55 A B C D E	80 A B C D E
6 A B C D E	31 A B C D E	56 A B C D E	81 A B C D E
7 A B C D E	32 A B C D E	57 A B C D E	82 A B C D E
8 A B C D E	33 A B C D E	58 A B C D E	83 A B C D E
9 A B C D E	34 A B C D E	59 A B C D E	84 A B C D E
10 A B C D E	35 A B C D E	60 A B C D E	85 A B C D E
11 A B C D E	36 A B C D E	61 A B C D E	86 A B C D E
12 A B C D E	37 A B C D E	62 A B C D E	87 A B C D E
13 A B C D E	38 A B C D E	63 A B C D E	88 A B C D E
14 A B C D E	39 A B C D E	64 A B C D E	89 A B C D E
15 A B C D E	40 A B C D E	65 A B C D E	90 A B C D E
16 A B C D E	41 A B C D E	66 A B C D E	91 A B C D E
17 A B C D E	42 A B C D E	67 A B C D E	92 A B C D E
18 A B C D E	43 A B C D E	68 A B C D E	93 A B C D E
19 A B C D E	44 A B C D E	69 A B C D E	94 A B C D E
20 A B C D E	45 A B C D E	70 A B C D E	95 A B C D E
21 A B C D E	46 A B C D E	71 A B C D E	96 A B C D E
22 A B C D E	47 A B C D E	72 A B C D E	97 A B C D E
23 A B C D E	48 A B C D E	73 A B C D E	98 A B C D E
24 A B C D E	49 A B C D E	74 A B C D E	99 A B C D E
25 A B C D E	50 A B C D E	75 A B C D E	100 A B C D E

ANSWER KEY INFO.
 # OF KEYS
 ITEM COUNT

0	0	0	2
1	1	1	3
2	2	2	4
3	3	3	5
4	4	4	6
5	5	5	7
6	6	6	8
7	7	7	9
8	8	8	0
9	9	9	0

PERFORMANCE ASSESSMENT
 % OF TOTAL SCORE
 POINTS EARNED

88 = 100%			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Bar Code

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

200 ITEM

MARKING INSTRUCTIONS
 Use a No. 2 Pencil
 A ● C D E
 Fill oval completely
 A B C D E
 Erase cleanly

STUDENT ID NUMBER

0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

FEED IN THIS DIRECTION ↑

NAME _____
 SUBJECT _____
 PERIOD _____ DATE _____

Feedback Form Study Guide – Bricklayer

Please answer the following:

- (1) This Study Guide is a useful tool for exam preparation.
 strongly agree agree disagree strongly disagree
- (2) The topics contained in the guide are arranged in a logical order.
 strongly agree agree disagree strongly disagree
- (3) The design and format of the guide caught my attention.
 strongly agree agree disagree strongly disagree
- (4) The instructions throughout the guide are clear and to the point.
 strongly agree agree disagree strongly disagree
- (5) The resources listed in this guide are suitable and valuable.
 strongly agree agree disagree strongly disagree
- (6) The guide should contain more information.
 strongly agree agree disagree strongly disagree

Suggested information/resources to include:

Additional Comments:

Please complete this form and return via fax or mail to the following:

Department of Advanced Education, Skills and Labour
Apprenticeship and Trades Certification Division
Standards and Curriculum Unit
45 Tilley's Road, Clarenville, NL A5A 1Z4
Fax: (709) 466-3987

