

# Apprenticeship and Certification Study Guide



# Table of Contents

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Introduction .....	3
Exam Process .....	4
Before the Exam.....	4
During the Exam.....	4
After the Exam .....	4
Exam Format .....	5
Exam Content.....	9
Understanding the Red Seal Occupational Standard (RSOS) .....	9
Exam Breakdown .....	11
RSOS Sub-tasks.....	12
Task Profile Checklist .....	13
Create a Study Plan .....	18
Resources - Websites .....	21
Resources – Book List.....	22
Conclusion.....	23
 <b>Appendices</b>	
Appendix A: Regional Offices .....	24
Appendix B: Calculator Use .....	25
Appendix C: Answer Sheet Example .....	26

## Introduction

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

<https://www.gov.nl.ca/atcd/designated-trades/list-of-designated-trades/>

### 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

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### Before the Exam

You must contact the nearest Apprenticeship and Trades Certification Divisional office to make request to write the 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

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All 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 erecting scaffold, where is the lanyard attached?
  - A. Below the feet.
  - B. Below the waist.
  - C. Above the head.
  - D. Below the shoulders.



2. How does the use of insulation retard heat loss?

- A. By providing a vapor barrier.
- B. By providing a weather barrier.
- C. By providing a thermal barrier.
- D. By providing an acoustic barrier.



3. Which fasteners are used on polyurethane insulation?

- A. Foil tape.
- B. Fibre tape.
- C. Aluminum banding.
- D. Stainless steel wire.



**Level 2 Examples:**

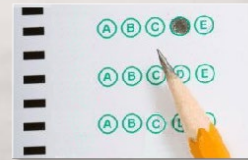
1. Which length of 2 in. blanket material is required to cover a flange with a diameter of  $8 \frac{1}{4}$  inc. for a flexible, removable cover?

- A. 26 in.
- B.  $32 \frac{1}{4}$  in.
- C.  $38 \frac{1}{2}$  in.
- D. 41 in.



2. What is done to prevent frost buildup when insulating plumbing vents penetrating a roof?

- A. Install ½ in. elastomeric foam and secure with banding.
- B. Install 1 in. fiberglass duct wrap and secure with wing staples.
- C. Install 1 in. fiberglass duct wrap and attach with staples.
- D. Install 1 in. fiberglass ASJ pipe insulation and secure with self-seal laps.



3. What size of 4 oz. canvas is required to cover a 100 mm x 25 mm iron pipe 90° elbow?

- A. 450 mm x 400 mm.
- B. 450 mm x 450 mm.
- C. 500 mm x 500 mm.
- D. 550 mm x 550 mm.



**Level 3 Examples:**

1. How many bands are needed on an 18 in. x 3 in iron pipe insulation measuring 96 ft. long, with bands on each end and at 9 in. centers?

- A. 126
- B. 127
- C. 128
- D. 129



2. A duct that measures 10 in. x 16 in. is to be acoustically insulated with 24 in. x 48 in. x 1 in. rigid acoustic board insulation. How wide are the pieces cut using the least amount of material?

- A. 8 in. and 16 in.
- B. 8 in. and 18 in.
- C. 10 in. and 16 in.
- D. 10 in. and 18 in.



3. A 100 ft. long curtain wall with a 3 in. space is to be fire-stopped with self-leveling caulking to a depth of 2 in. How much material is required to fill the void?

- A. 3.20 cu. ft.
- B. 4.16 cu. ft.
- C. 41.60 cu. ft.
- D. 50.60 cu. ft.



**Source of Questions:**

[www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=131](http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=131)

## Exam Content

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### Understanding the *Red Seal Occupational Standard (RSOS)*

The Red Seal model has historically been based on the development of the National Occupational Analysis (NOA) which supports the development of multiple-choice format examinations.

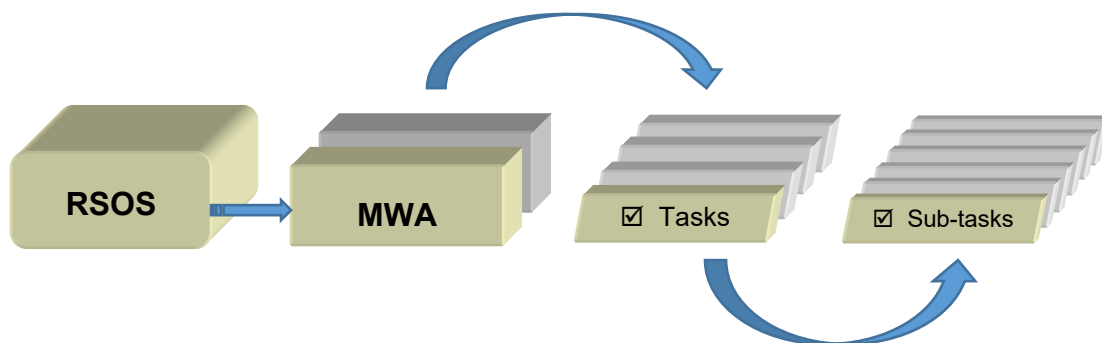
The RSOS was introduced in 2015 and is now taking the place of the NOA. Each RSOS or NOA sets the standard for a Red Seal trade. The Red Seal Examination is based on the Red Seal Standard.

The new standards provide greater consistency in learning resources and allow for increased industry involvement in the development of these standards. This new model places increases emphasis on apprenticeship training and assessing skills with industry learning objectives, outcomes and performance criteria.

The RSOS for each trade describes the tasks and sub-tasks; skills and knowledge requirements; summary of essential skills; safety information; trends affecting the trade; technical terms; names of tools and equipment; acronyms; learning objectives and outcomes; industry expected performance and essential skills related to each sub-task.

The RSOS is an excellent tool to use as you study for the Red Seal exam. RSOSs can be found at <http://www.red-seal.ca/resources/n.4.1-eng.html>

RSOS material is organized into the following categories: **MWA** (*Major Working Activity*). The MWAs are further broken down into **TASKS** (*describes activities within an MWA*) and **SUB-TASKS** (*describe activities within a task – This is what the exam is based on*).

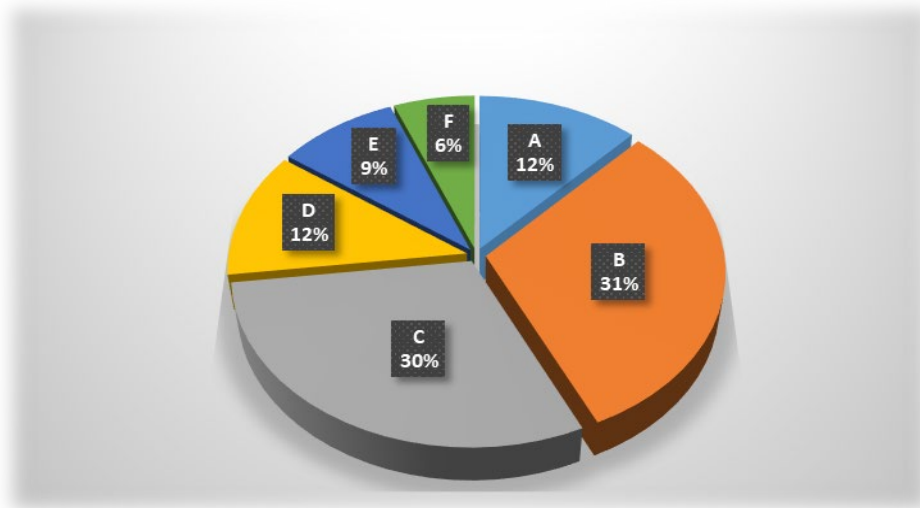


The NOA will continue to be used as the occupational standard for trades that do not yet have an RSOS developed.

## RSOS Pie Chart

The RSOS Pie Chart presents the MWA percentages in the form of a pie chart which tells you the approximate number of questions from each MWA. For example, 12% of the questions on the **Insulator (Heat and Frost)** Exam will be based on **MWA A**.

**INSULATOR (HEAT AND FROST)**



MWA Titles			
<b>MWA A</b>	Performs Common Occupational Skills	<b>MWA D</b>	Performs Applications Common to Industrial and Commercial
<b>MWA B</b>	Performs Industrial Applications	<b>MWA E</b>	Performs Specialized Applications
<b>MWA C</b>	Performs Commercial Applications	<b>MWA F</b>	Performs Asbestos, Lead and Mold Abatement

## Exam Breakdown

The **Insulator (Heat and Frost)** exam currently has 130 questions. The following table shows a breakdown of the number of questions that come from each RSOS MWA. 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
<b>MWA A</b>	<b>Performs Common Occupational Skills</b>	<b>16</b>
<b>Task 1</b>	Performs safety-related functions	
<b>Task 2</b>	Uses and maintains tools and equipment	
<b>Task 3</b>	Organizes work	
<b>Task 4</b>	Uses communication and mentoring techniques	
<b>Task 5</b>	Performs routine trade practices	
<b>MWA B</b>	<b>Performs Industrial Applications</b>	<b>40</b>
<b>Task 6</b>	Prepares for installation of insulation in industrial applications	
<b>Task 7</b>	Insulates piping and fittings	
<b>Task 8</b>	Insulates tanks, vessels and equipment	
<b>MWA C</b>	<b>Performs Commercial Applications</b>	<b>39</b>
<b>Task 9</b>	Prepares for installation of insulation in commercial applications	
<b>Task 10</b>	Insulates plumbing and mechanical piping systems	
<b>Task 11</b>	Insulates mechanical ducting	
<b>Task 12</b>	Insulates mechanical equipment	
<b>MWA D</b>	<b>Performs Applications Common to Industrial and Commercial</b>	<b>15</b>
<b>Task 13</b>	Installs fire stop systems	
<b>Task 14</b>	Insulates for soundproofing	
<b>Task 15</b>	Installs removable covers	
<b>Task 16</b>	Installs underground insulating systems	
<b>MWA E</b>	<b>Performs Specialized Applications</b>	<b>12</b>
<b>Task 17</b>	Sprays sealers, coatings and spray-on insulation	
<b>Task 18</b>	Installs fireproofing	
<b>Task 19</b>	Installs insulation for refractory systems	
<b>Task 20</b>	Installs insulation for cryogenic systems	
<b>Task 21</b>	Insulates for marine applications ( <b>NOT COMMON CORE</b> )	
<b>MWA F</b>	<b>Performs Asbestos, Lead and Mold Abatement</b>	<b>8</b>
<b>Task 22</b>	Prepares for asbestos abatement	
<b>Task 23</b>	Performs asbestos removal procedures	
<b>Task 24</b>	Performs maintenance and repair	
<b>Task 25</b>	Performs lead abatement and mold remediation	
	<b>Total</b>	<b>130</b>

## RSOS Sub-tasks

The following *RSOS Task Profile Checklist* outlines the MWAs, tasks and sub-tasks for your trade. The Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the RSOS. This chart can be used to review your current knowledge. You can review by placing a check mark (✓) 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 RSOS 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 RSOS for your trade.

**Task Profile Checklist  
Based on 2018 RSOS  
Insulator (Heat and Frost)**

**MWA A: Performs Common Occupational Skills**

**Task 1: Performs safety related functions**

*Sub-Tasks*

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

**Task 2: Uses and maintains tools and equipment**

*Sub-Tasks*

- Uses tools and equipment
- Uses access equipment

**Task 3: Organizes work**

*Sub-Tasks*

- Performs task scheduling
- Organizes material on site

**Task 4: Uses communication and mentoring techniques**

*Sub-Tasks*

- Uses communication techniques
- Uses mentoring techniques

**Task 5: Performs routine trade practices**

*Sub-Tasks*

- Performs measurements and calculations
- Interprets specifications and drawings
- Prepares substrate

## MWA B: Performs Industrial Application

### Task 6: Prepares for installation of insulation in industrial applications

Sub-Tasks

- Selects materials for industrial applications
- Performs layout for industrial applications

### Task 7: Insulates piping and fittings

Sub-Tasks

- Installs insulation on piping, fittings, and hangers
- Applies vapour barrier on piping and fittings
- Installs cladding, jacketing and finishes on piping and fittings

### Task 8: Insulates tanks, vessels and equipment

Sub-Tasks

- Installs insulation on tanks, vessels and equipment
- Applies vapour barrier on tanks, vessels and equipment
- Installs cladding, jacketing and finishes on tanks, vessels and equipment

## MWA C: Performs Commercial Application

### Task 9: Prepares for installation of insulation in commercial applications

Sub-Tasks

- Selects materials for commercial applications
- Performs layout for commercial applications

### Task 10: Insulates plumbing and mechanical piping systems

Sub-Tasks

- Installs insulation on plumbing and mechanical piping systems
- Applies vapour barrier on insulated plumbing and mechanical piping systems
- Installs cladding, jacketing and finishes on insulated plumbing and mechanical piping systems

### Task 11: Insulates mechanical ducting

Sub-Tasks

- Installs insulation on mechanical ducting
- Applies vapour barrier on insulated mechanical ducting
- Installs cladding, jacketing and finishes on insulated mechanical ducting

### Task 12: Insulates mechanical equipment

Sub-Tasks

- Installs insulation on mechanical equipment
- Applies vapour barrier on insulated mechanical equipment
- Installs cladding, jacketing and finishes on insulated mechanical equipment

## MWA D: Performs Applications Common to Industrial and Commercial

### Task 13: Installs fire stop systems

*Sub-Tasks*

- Identifies approved fire stop system
- Applies fire stop materials to architectural, structural, mechanical and electrical components

### Task 14: Insulates for soundproofing

*Sub-Tasks*

- Insulates piping for soundproofing
- Insulates turbines, equipment and mechanical systems for soundproofing
- Fabricates acoustic panels (**NOT COMMON CORE**)
- Installs acoustic panels to ceilings and walls (**NOT COMMON CORE**)

### Task 15: Installs removable covers

*Sub-Tasks*

- Fabricates removable covers
- Fastens removable covers

### Task 16: Installs underground insulating systems

*Sub-Tasks*

- Installs pipe insulation to underground systems
- Installs pour-in-place and spray-on insulation to underground systems

## MWA E: Performs Specialized Applications

### Task 17: Sprays sealers, coatings and spray-on insulation

#### Sub-Tasks

- Protects surrounding work area for spraying
- Prepares material, equipment and substrate for spraying
- Installs reinforcing material for spraying
- Applies spray-on insulation, coatings, and sealers

### Task 18: Installs fireproofing

#### Sub-Tasks

- Applies fireproofing to architectural, structural, mechanical and electrical components
- Applies protective covering to fireproofing materials

### Task 19: Installs insulation for refractory systems

#### Sub-Tasks

- Applies insulation to refractory systems
- Installs reflective systems
- Installs cladding, jacketing and finishes to refractory systems

### Task 20: Installs insulation for cryogenic systems

#### Sub-Tasks

- Applies insulation to cryogenic systems
- Applies vapour barrier to insulated components of cryogenic systems
- Installs cladding, jacketing and finishes to cryogenic systems

### Task 21: Insulates for marine applications (**NOT COMMON CORE**)

#### Sub-Tasks

- Insulates bulkheads, deckheads and hulls (**NOT COMMON CORE**)
- Installs cladding, jacketing and finishes on marine applications (**NOT COMMON CORE**)

## MWA F: Performs Asbestos, Lead and Mold Abatement

### Task 22: Prepares for asbestos abatement

#### Sub-Tasks

- Determines required personal protective equipment (PPE)
- Retrieves sample of asbestos for testing
- Determines scope of work
- Prepares site for removal and containment of asbestos
- Builds temporary enclosure

### Task 23: Performs asbestos removal procedures

#### Sub-Tasks

- Removes asbestos
- Disposes of asbestos materials
- Performs decontamination of area and equipment

### Task 24: Performs maintenance and repair

#### Sub-Tasks

- Encapsulates asbestos
- Encloses asbestos

### Task 25: Performs lead abatement and mold remediation

#### Sub-Tasks

- Performs lead abatement
- Performs mold remediation

## Create Study Plan

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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 RSOS 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

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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 journeyman in your trade.

### Study Strategies and Exam Preparation Guide

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

<https://www.gov.nl.ca/atcd/apprentices-youth/self-study/study-guides/>

### 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 a 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 RSOS.

<https://www.gov.nl.ca/atcd/designated-trades/pots-aacs/>

### Red Seal Website

**Red Seal** is a program that sets common standards to evaluate the skills of tradespeople across Canada. It is a partnership between the Federal Government and the provinces/territories.

The Red Seal model has been based on the National Occupational Analyses (NOA) which supports the development of multiple-choice examinations. A new Red Seal Occupational Standard (RSOS) was introduced in 2015 and is taking the place of the NOA.

<http://www.red-seal.ca/initiatives/str.2ngth.2n.3ng-eng.html>

### Insulator (Heat and Frost) PRACTICE Exam

This is **NOT** a Red Seal exam. This is a practice exam provided by the 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 a Red Seal Exam.

<http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=131>

### Red Seal Exam Self-Assessment Guide

Use this self-assessment tool to rate your own understanding and experience with the tasks of the trade that are on the Red Seal examination:

[https://www.red-seal.ca/\\_conf/assets/custom/docms/insulator/self-assessment.pdf](https://www.red-seal.ca/_conf/assets/custom/docms/insulator/self-assessment.pdf)

### Acronyms

The Red Seal website lists Acronyms which will be helpful in preparing for your Red Seal exam:

[http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s\\_.1pp.1\\_.1cr.4nym-eng.html](http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s_.1pp.1_.1cr.4nym-eng.html)

### Tools and Equipment

The Red Seal website lists Tools and Equipment which can help in preparing for your Red Seal exam:

[http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s\\_.1ppb\\_t.4.4ls-eng.html](http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s_.1ppb_t.4.4ls-eng.html)

### Glossary

The Red Seal website lists a Glossary which can be helpful in preparing for the Red Seal exam:

[http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s\\_.1ppc\\_gl.4ss.1ry-eng.html](http://www.red-seal.ca/trades/insulatorheatfrost/2018rs.4s_.1ppc_gl.4ss.1ry-eng.html)

## Resources – Book List

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The book listed below can help you obtain information on specific topics. It is not necessary to use this book specifically, as you may find others that will be equally beneficial.

**If you wish to obtain the resource listed, here is the reference information:**

- National Commercial & Industrial Insulation Standards*, 7<sup>th</sup> edition, MICA Insulation, 1979, Micainsulation.org, Product Code NC117P

## Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write a Red Seal Exam. This does not mean the Department of Education and Early Childhood Development, Newfoundland and Labrador endorse 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 a Red Seal exam. The Department of Education and Early Childhood Development has no control over the content of external textbooks and websites listed, and no responsibility is assumed for the accuracy of the material.

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## Conclusion

We hope this guide has provided you with some useful tools as you prepare for your 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

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

Department of Education and Early Childhood Development  
Apprenticeship and Trades Certification Division  
Toll Free: 1-877-771-3737

<https://www.gov.nl.ca/atcd/contact-us/staff-listing-and-office-locations/>

### Corner Brook

1-3 Union Street  
Aylward Building, 2<sup>nd</sup> 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  
AOP 1E0

Telephone: (709) 896-6348  
Facsimile: (709) 896-3733

### Wabush

1D Grenfell Drive  
P.O. Box 160  
Wabush, NL  
AOR 1B0

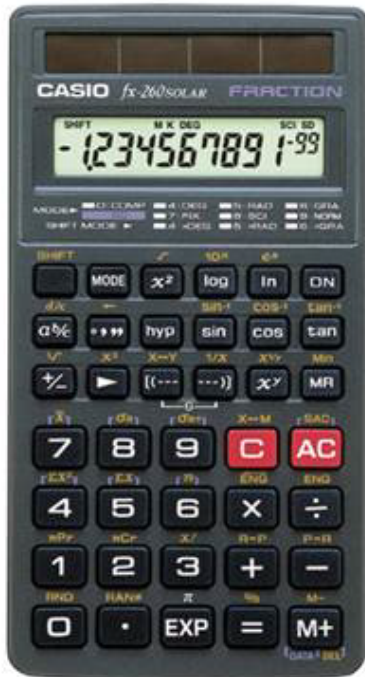
Telephone: (879) 382-1920  
Facsimile: (709) 282-3007

## Appendix B: Calculator Use

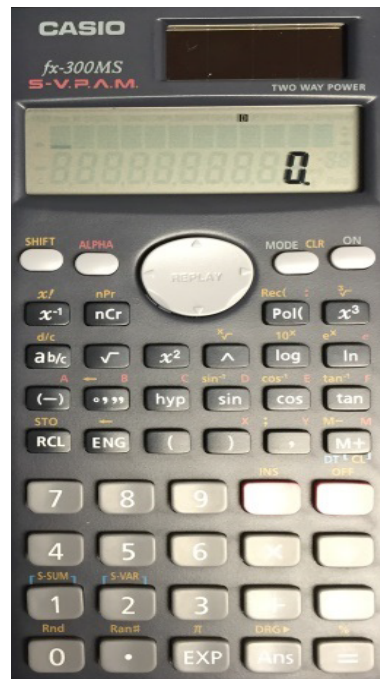
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The picture below shows a calculator with the same functions as the one you will be provided with during your exam. It is advisable to borrow or purchase one with similar functions so that you can familiarize yourself with it before you write your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

**Casio FX-260**



**Casio FX-300 MS**



# 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		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		

PERFORMANCE ASSESSMENT

% OF TOTAL SCORE

POINTS EARNED

00 = 100%

E Q U I P M E N T S	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1
P O I N T S	2	2	2	2	2	2	2	2
V A L U E	3	3	3	3	3	3	3	3
	4	4	4	4	4	4	4	4
	5	5	5	5	5	5	5	5
	6	6	6	6	6	6	6	6
	7	7	7	7	7	7	7	7
	8	8	8	8	8	8	8	8
	9	9	9	9	9	9	9	9

NUMBER CORRECT

PERCENT CORRECT

ROSTER NUMBER

SCORE

RESCORE

COMBINED POINTS EARNED

COMBINED PERCENT CORRECT

LETTER GRADE

SCORE

RESCORE

**200**

ITEM

NAME \_\_\_\_\_

SUBJECT \_\_\_\_\_

PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

**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

## Feedback Form

### Study Guide – Insulator (Heat and Frost)

Please answer the following:

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- (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:

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Additional Comments:

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

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

Department of Education and Early Childhood Development  
Apprenticeship and Trades Certification Division

