

Pre-Employment Carpentry Certificate Program



Candidate Guide



SIAS

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APPLIED SCIENCE AND TECHNOLOGY

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The Pre-Employment Carpentry Certificate program is dedicated to removing barriers and broadening the access to programs at SIAST. We believe that adults acquire knowledge and skills through life and work experience that may align with courses within our programs.

Developed	April 2005		
Revised	March 2007		
Web Ready – PLAR Office	October 2005		

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Why consider a PLAR assessment?

PLAR refers to the combination of flexible ways of evaluating people's lifelong learning, both formal and informal against a set of established standards. You can receive academic credit for your relevant lifelong learning. The Pre-Employment Carpentry program recognizes prior learning in a number of ways.

We recognize:

- Previous formal learning from an accredited training institution through transfer of credit.
- Previous informal learning or experiential learning through a comprehensive prior learning and recognition process.

What are the PLAR options?

To be eligible for PLAR, an applicant must first register or already be registered as a SIAST student.

Individual Course Challenge

If you have 2 years work experience within the last 5 years in the carpentry field, and have learned the skills and knowledge for one or more of the Pre-Employment Carpentry courses, you may apply to be assessed for each applicable course.

Fees:

- There is a charge for each individual course assessment.
- For a listing of the specific PLAR fees in the PLAR database, check the [PLAR database](#) or call SIAST and ask to speak to the PLAR advisor/counsellor assigned to the Carpentry program at: 1-866-467-4278 or 1-866-goSIAST.

How many courses can be challenged through Pre-Employment Carpentry?

Currently we have 9 out of 22 courses in the Pre-Employment Carpentry program with PLAR challenges available. You may challenge as many of these courses as you are able to prove prior skills and knowledge through assessment.

Which courses are PLAR-ready?

Certificate Program Profile			
Course	PLAR Challenge Available	Mandatory Theory (Written) Test Required	Mandatory Performance Test (Practical) Required
SFTY 129 - Construction Safety	X	X	
BPRT 127 - Construction Documents	X	X	X
MATH 127 - Trade Math	X	X	
MATE 126 - Building Materials	X	X	
EQPT 126 - Tools	X	X	
BPRT 222 - Blueprints and Quantity Survey	X	X	X
FRMG 220 - Floor Framing	X	X	X
FRMG 221 - Wall Framing	X	X	X
FRMG 222 - Roof Framing	X	X	X

What resource materials are used for these courses?

Each course uses a training manual titled with the course code. Other resource materials are listed in each of the course self-audits of this guide.

Can I complete a PLAR challenge at any time of the year?

PLAR challenges are currently being offered in May and June for the class beginning in the following September.

Is it *easier* to challenge a course through PLAR or take the course?

Neither is easier. By using PLAR you may reduce the repetition of studying information that you already know. The PLAR process allows you to demonstrate knowledge you already have. Taking a new course would review information already known and perhaps allow for new learning.

What courses are *easier* to PLAR?

PLAR is not an easy way to certification, rather a different way to obtain certification. Your personal level of skill and experience will dictate which courses you choose to challenge.

Methods of assessing prior learning

Assessment methods measure an individual's learning against course learning outcomes. The assessment methods listed below are the ones used.

In order to PLAR you must provide:

- Employer verification by a Journeyperson Carpenter or an experienced tradesperson.
- You must achieve a minimum rating of "Competent" in the self-audit guide.

Upon PLAR approval you must complete:

- Written test – Mandatory for all of the Pre-employment courses
- Performance Evaluations (practical demonstrations) – Mandatory for the following courses: BPRT 127, BPRT 222, FRMG 220, FRMG 221 and FRMG 222

Do I have to make a trip to one of the main campuses to complete a PLAR challenge if I live out of town?

There will be times that you will need to meet with the program on campus. However, we will try to keep travel to a minimum. [Arrangements](#) can be made to challenge the theory (written) test from another area of the province providing a suitable proctor is present. (Use the Proctor Sample form in Appendix C). Courses that require Performance Demonstrations will necessitate your attendance at Woodland Campus or Palliser Campus.

What if I have a disability & need equity accommodations?

At SIAST, we understand that sometimes services must be provided to students in a variety of ways to achieve the goals of fair representation. Therefore, the range of services provided for Education Equity students is as diverse as the needs of those

students. We strive for equity (not uniformity) and provide varied services for students with differing needs. If more information is required, please contact a SIAST counsellor at a campus closest to you or refer to the SIAST web site:

<http://www.siastr.sk.ca/siastr/servicesforstudents/>

Are there other methods to gain SIAST course credits for prior learning?

Transfer Credit

Yes, SIAST will grant credit for previous training that is similar in content, objectives, and evaluation standards to SIAST training. **Transfer of credit** is different from the PLAR process. Transfer Credit guidelines may be found at:

<http://www.siastr.sk.ca/siastr/admissions/transfercrredit.htm>

It is the student's responsibility to check with [Registration Services](#) for specific campus procedures on this policy. For specific information and guidelines regarding transfer of credit, contact a SIAST educational counsellor.

Note: An online Provincial Transfer Credit Guide will soon be available
www.saskcat.ca.

Note: If you are a recent high school graduate, check the Saskatchewan Learning Web site for any articulated agreements that may apply for Computer Courses or Practical and Applied Arts Courses.

Equivalency Credit

Equivalency credit refers to the application of credit you may have earned in a previously taken SIAST course to your current SIAST course. Apply at registration services for *equivalency credit*. This process should also be completed prior to your PLAR challenge. If these credits cannot be used for *equivalency credit*, you may use these accredited courses as part of your evidence for your PLAR challenge.

Contact us:

Kelsey Campus, Saskatoon, SK
(306) 933-6445 or 1-866-467-4278

Palliser Campus, Moose Jaw, SK
(306) 694-3266 or 1-866-467-4278

Wascana Campus, Regina, SK
(306) 798-1267 or 1-866-467-4278

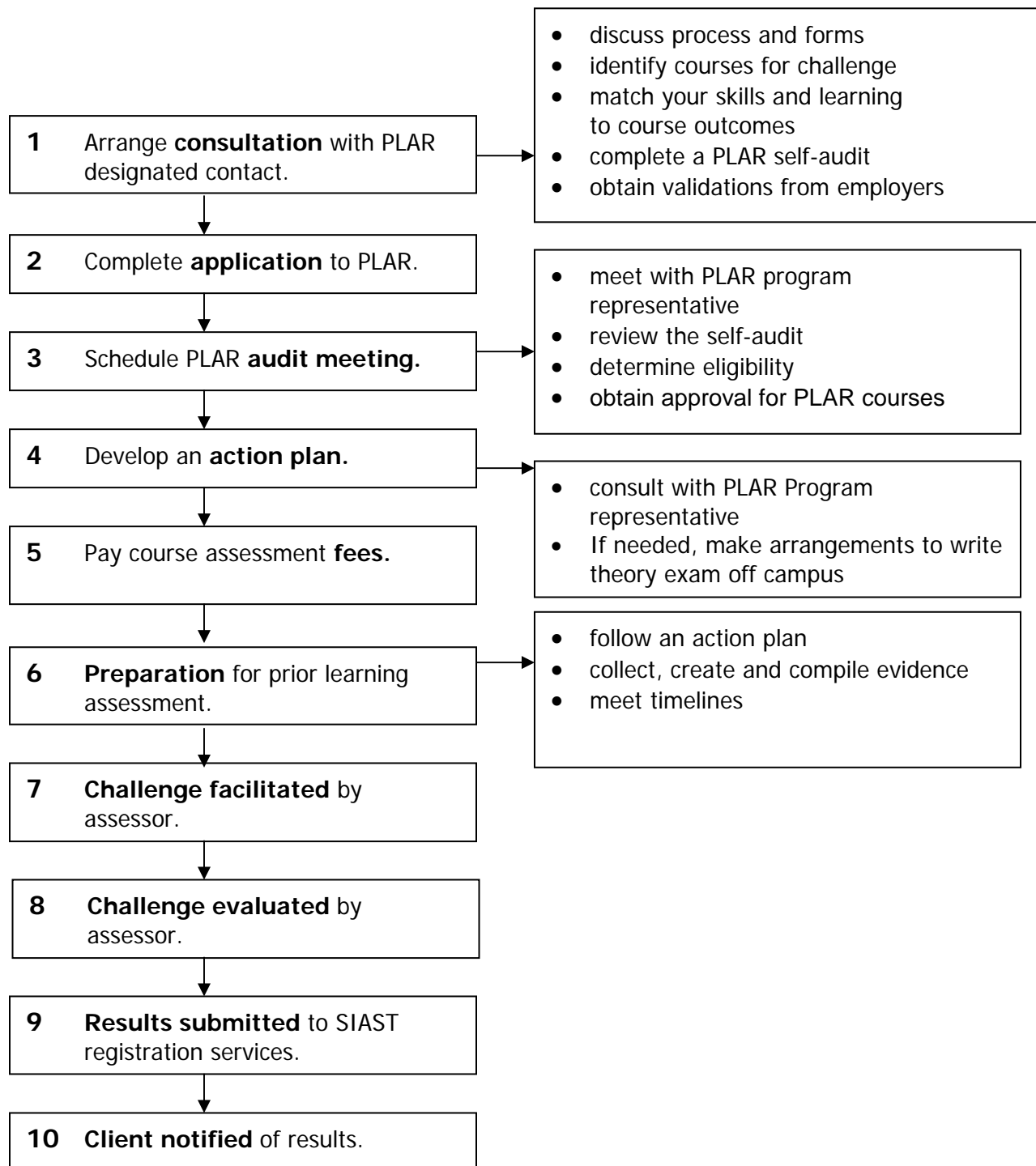
Woodland Campus, Prince Albert, SK
(306) 953-7132 or 1-866-467-4278

If more information is required, please contact a designated PLAR counsellor at a campus closest to you.

The PLAR process

Note: To be eligible for PLAR, candidates must be enrolled in a SIAST course or program.

Candidate Process for Prior Learning Assessment



Guiding principles for developing a PLAR evidence file

1. As you begin the PLAR process you will be advised if any evidence is required. This will be identified in your [action plan](#). Check with the PLAR designated contact **before** you begin to gather evidence.
2. Evidence must be valid and relevant. Your evidence must match the learning outcomes identified for each course. It is your responsibility to create, collect and compile relevant evidence.
3. Learning must be current (2 years experience within the last 5 years).
4. The evidence should demonstrate the skills and knowledge from your experiences.
5. The learning must have both a theoretical and practical component.
6. Evidence must also include the employer's validation (see Appendix A and B).

How long will it take to prepare evidence for PLAR?

Since the requirements are different for each course, and each candidate has different experiences, the amount of time it takes to prepare your evidence will vary.

Steps to complete a self-audit

1. Read through the Levels of Competence as listed below.

Levels of Competence:

Mastery: I am able to demonstrate the learning outcome well enough to teach it to someone else.

Competent: I can work independently to apply the learning outcome.

Functional: I need some assistance in using the outcome.

Learning: I am developing skills and knowledge for this area.

None: I have no experience with the outcome.

Learning Outcomes	Competency Level				
For each learning outcome listed, please self-evaluate your competency levels and record in the appropriate column	Mastery	Competent	Functional	Learning	None

2. Take a few minutes and read through the following self-audit for each course you are interested in as a PLAR candidate.
3. Check your level of competence as you read through each of the learning outcomes for each course. The information will help you in your decision to continue with your PLAR application.
4. In order to be successful in a PLAR assessment, you must be at the competent or mastery level for the majority of the learning outcomes. Some things to consider when determining your level of competence are:
 - How do I currently use this outcome?
 - What previous training have I had in this outcome – workshops, courses, on-the-job?
 - What personal development or volunteer experience do I have in this area?

Be prepared to explain the reason you chose this level if asked by an assessor.

5. Bring the completed self-audit, the completed employer validation checklist(s), and the employer validation letter ([Appendix A](#)) when you meet with the faculty member in [step 3 – PLAR process](#) of the Candidate Process for Prior Learning Assessment.

Pre-Employment Carpentry



Self Audit Guides



SASKATCHEWAN INSTITUTE OF
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Self-audit Guide(s)

SFTY 129 - Construction Safety

Credit Units: 1.00

You will acquire the knowledge and theory needed to recognize and protect yourself from unsafe conditions on the job site. You will learn how to apply Occupational Health and Safety Regulations. You will focus on the theory needed to identify and describe personal protective equipment, full protection, work environment hazards and industrial health hazards.

SFTY 129 – Construction Safety Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Identify Occupational Health and Safety Regulations					
▪ Identify occupational health and safety legislation					
2. Select Personal Protective Clothing and Equipment					
▪ Identify noise hazards and hearing protection					
▪ Select suitable eye protection					
▪ Identify respiratory protection					
3. Recognize Unsafe Working Equipment					
▪ Construction safety					
4. Recognize Unsafe Working Environments					
▪ Identify hazards when working in confined spaces and excavations					
▪ Identify housekeeping requirements					
▪ Describe hazards associated with material handling and lifting					
▪ Describe harassment in the workplace					
5. Practice Fire Safety					
▪ Practice fire safety					
6. Identify the Workplace Hazardous Material Information System (WHIMIS)					
▪ Identify workplace hazardous material information system					
▪ Describe hazards working in extreme cold or heat conditions					
▪ Describe hazards with blood born pathogen infections					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete a theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark is 60%
- multiple choice test

Example:

Proper footwear for construction sites should have:

- a) leather soles and steel toes
- b) steel toes and slip resistant footwear
- c) steel toes and puncture resistant soles (green triangle)
- d) steel toes (red label)

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head) – [See Step 4 – Action Plan.](#)

Evidence file (An interview may be required to clarify evidence).

Submit the following evidence:

- PLAR Validation Checklist - learning outcomes checked and verified by an employer and/or customer
- Letter of validation from employer(s)

Any current CSA approved certificates. Must be confirmed by assessor.

Resources

Note: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course.

1. SFTY 129 Manual
2. Carpentry Third Edition (Lewis and Vogt) or any carpentry text.
3. The Occupational Health and Safety Act, 1993 and The Occupational Health and Safety Regulations, 1996

BPRT 127 - Construction Documents

Credit Units: 1.00

You will receive the theoretical and practical background needed to interpret construction drawings (blueprints), specifications, permits, regulations and codes. The course content includes basic quantity surveying (also referred to as estimating material quantities).

BPRT 127 – Construction Documents Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use Basic Residential Blueprints					
▪ Identify various components of construction drawings					
▪ Interpret blueprints					
2. Interpret Building Codes					
▪ Interpret the National Building Code					
▪ Describe Canada's national standards system					
▪ Interpret building codes					
3. Prepare a Quantity Survey					
▪ Identify quantity survey procedures for excavations					
▪ Identify quantity survey procedures for footings and pilings					
▪ Identify quantity survey procedures for foundation walls					
▪ Identify quantity survey procedures for concrete slabs					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#)).

- passing mark of 60%
- multiple choice

Example:

Information regarding the amount of insulation in the attic can be found on the:

- a) cross section
- b) second floor plan
- c) floor plan
- d) elevation views

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head) – [See Step 4 – Action Plan](#).

Performance Test (Practical Demonstration)

- Demonstrate ability to read a blueprint and do basic quantity survey for concrete foundations - Performance Test 1
Heritage Park Blueprint

Evidence file (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation by an employer

Resources

Note: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course.

1. Resource Material for Theory Test
2. BPRT 127 Manual
3. Carpentry 3RD Edition – Lewis and Vogt

MATH 127 - Trade Math

Credit Units: 2.00

You will learn how to use whole numbers, common and decimal fractions, percentages, ratio and proportions, angular measurements, length, area and volume measurements in the Imperial and Metric system. You will also convert Imperial and Metric measurements.

Math 127 – Trade Math Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Operate and Electronic Calculator					
2. Perform Mathematics Calculations Used in the Construction Process					
▪ Process calculations using whole numbers					
▪ Perform calculations using fractions, decimals and percentages					
▪ Calculate perimeters and areas					
▪ Calculate volumes					
▪ Use the Pythagorean Theorem					
▪ Calculate board measure					
3. Use Metric and Imperial Systems of Weights and Measure					
▪ Use metric system of weights and measure					
▪ Perform calculations using the Imperial system of weights and measure					
▪ Convert systems of measure					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark is 60%
- The challenge test is mostly short-answer questions requiring you to show some of your work, like the formula and/or substitution steps, and the solution step.

Examples:

QUESTION: Do the following showing your work on paper $4\frac{1}{4} - 2\frac{7}{8} =$

On paper, you would show any one of the following methods.

$$\text{Method \#1} \quad 4\frac{1}{4} - 2\frac{7}{8} = \frac{17}{4} - \frac{23}{8} = \frac{34}{8} - \frac{23}{8} = \frac{11}{8} = 1\frac{3}{8}$$

$$\text{Method \#2} \quad 4\frac{1}{4} - 2\frac{7}{8} = 3\frac{5}{4} - 2\frac{7}{8} =$$

The whole difference is $3 - 2 = 1$

$$\text{The fraction difference is } \frac{5}{4} - \frac{7}{8} = \frac{10}{8} - \frac{7}{8} = \frac{3}{8}$$

Altogether the answer is $1\frac{3}{8}$

QUESTION: Suppose that you need to determine the number of 3/16-in sheets of plywood needed to press together to make a panel $1\frac{1}{2}$ -in. thick.

(a) Write down the calculation needed to determine the required number of 1/16-in. sheets.

$$1\frac{1}{2} \div \frac{3}{16} =$$

(b) Do the calculation.

8 sheets

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Evidence file - (An interview may required to clarify evidence)
Proof of completion grade 10 math

Resources

Notes: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course

1. MATH 127 Manual
2. Practical Problems in Mathematics for Carpenters – Sixth Edition

MATE 126 - Building Materials

Credit Units: 1.00

Carpenters join together a wide variety of materials (such as wood, concrete, masonry, metals and plastics). You will study the theory needed to identify different types of wood and non-wood products used in the construction process. You will also study the types of mechanical fasteners used.

MATE 126 – Building Materials Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Identify the Structure of Woods					
▪ Identify the structure of wood					
▪ Identify the classes, characteristics and uses of wood					
▪ Identify the cuts, sizes and seasoning of lumber					
▪ Identify the defects and grades of lumber					
▪ Identify manufactured lumber					
2. Identify the Types of Panel Products Used in the Construction Process					
▪ Describe the species and grades of common plywood					
▪ Describe the features of particle board, panelling and hardboard and their purposes					
3. Identify the Proper Products Used in the Construction Process					
▪ Describe procedures for storing wood products					
▪ Describe procedures for storing perishable goods					
4. Identify Mechanical Fasteners and Procedures for Their Use					
▪ Identify types of nails					
▪ Identify types of screws					
5. Identify Metal, Plastic and composite products Used in Carpentry					
▪ Identify various structural steel shapes					
▪ Identify the reinforcement used in concrete					
▪ Identify various other metal components used in buildings					
▪ Identify the different plastic products and composite products used in the construction					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark is 60%
- multiple choice test

Example

Lumber, which has been dried by controlled heat and humidity, is known as:

- a) seasoned lumber
- b) air-dried lumber
- c) kiln-dried lumber
- d) humidity-dried lumber

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head) [See Step 4 – Action Plan](#).

Performance Test (Practical Demonstration)

N/A

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)
- Any other supporting information

Resources

Notes: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course

1. Mate 126 Manual
2. Carpentry 3RD Edition – Lewis and Vogt
3. Principles and Practices of Commercial Construction – Sixth Edition

EQPT 126 - Tools**Credit Units:** 10.00

You will learn how to select, use and maintain a wide variety of hand tools and non-power equipment. You will also learn how to operate and maintain portable electric tools, pneumatic tools, powder actuated tools, cutting torches and stationary power tools.

EQPT 126 - Tools Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Use Hand Tools					
▪ Describe procedures for using measuring tools					
▪ Describe procedures for using testing tools					
▪ Identify the types of hand saws, their use and maintenance					
▪ Describe types of screw drivers and procedures for their use					
▪ Describe types of hammers and procedures for their use					
▪ Describe types of staplers and procedures for their use					
▪ Use dismantling tools					
▪ Describe the procedures for using knives and axes					
▪ Identify, use and maintain planes					
▪ Identify, use and maintain chisels					
▪ Identify stationary grinders and their parts					
▪ Describe procedures for operating grinders					
▪ Identify procedures for use of boring and drilling tools					
▪ Identify and use abrading tools and sand paper					
▪ Describe and use clamps and vices					
2. Use Portable Power Tools					
▪ Identify AC and DC electrical systems					
▪ Identify the procedures for operating (AC) drills					
▪ Identify the procedures for operating (DC) drills					
▪ Identify the procedures for operating rechargeable (DC) drills					
▪ Identify the procedures for operating electric hammer drills					
▪ Identify the procedures for operating the sabre and reciprocating saws					
▪ Identify the procedures for operating portable electric circular saw					
▪ Identify the procedures for operating power mitre saw					
▪ Identify the procedures for operating electric chain saw					
▪ Identify the procedures for operating portable sanders					
▪ Identify the procedures for operating routers					
▪ Identify the procedures for operating electric planes					
▪ Identify the procedures for operating (AC) drills					

EQPT 126 - Tools Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
<ul style="list-style-type: none"> ▪ Operate the plate joiner 					
<ul style="list-style-type: none"> ▪ Identify the compressed air system 					
3. Use Stationary Power Tools					
<ul style="list-style-type: none"> ▪ Operate stationary drills 					
<ul style="list-style-type: none"> ▪ Operate the table saw 					
<ul style="list-style-type: none"> ▪ Operate the radial arm saw 					
<ul style="list-style-type: none"> ▪ Operate the band saw 					
<ul style="list-style-type: none"> ▪ Operate stationary sanders 					
<ul style="list-style-type: none"> ▪ Operate a power jointer 					
<ul style="list-style-type: none"> ▪ Operate the thickness planer 					
4. Use Powder Actuated Tools					
<ul style="list-style-type: none"> ▪ Identify, operate and maintain tools 					
5. Use an Oxy-Acetylene Cutting Torch					
<ul style="list-style-type: none"> ▪ Identify oxy-acetylene safety 					
<ul style="list-style-type: none"> ▪ Identify, assemble and operate oxy-acetylene equipment 					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory tests for EQPT 126. This course also requires the successful completion of unit tests for PAT Test 1 and WELD Test 1 ([Refer to Appendix D – Exam Blueprint](#)).

- passing mark is 60%
- multiple choice test

Example

Which one of the following tools is preset for laying out 45 and 90 degree angles?

- a) sliding T bevel
- b) trammel points
- c) T square
- d) combination square

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Performance Test (Practical Demonstration)

N/A

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)
- A SIAST certificate of qualification for powder actuated tools operation or a certificate from another Canadian post secondary institution.

Resources

Notes: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course.

1. EQPT 126 Manual
2. Carpentry 3RD Edition – Lewis and Vogt

BPRT 222 - Blueprints and Quantity Survey

Credit Units: 2.00

You will learn how to interpret residential prints to determine the location, sizes, shapes and types of materials required for residential buildings. The course content includes quantity survey of residential building materials.

BPRT 222 – Blueprints and Quantity Survey Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Interpret Residential Blueprints					
▪ Describe working drawings and blueprints					
▪ Read elevation drawing					
▪ Read floor plans and basement plans					
▪ Read blueprints for symbols and notations					
▪ Read blueprints for structural, detail and plot plan information					
▪ Read blueprints for trade information					
2. Prepare Quantity Survey for Residential Framing and Exterior Finish					
▪ Take -off materials for; floor framing, wall framing, roof framing					
▪ Take off materials for roof coverings, cornice and exterior cladding					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark is 60%
- multiple choice

Example

When you view a South Elevation of a building, which way are you facing?

- a) north
- b) south
- c) east
- d) west

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Performance Test (Practical Demonstration)

Demonstrate ability to read a blueprint and do basic quantity survey for residential framing and exterior finish: Performance Test 2 - "Emerson Blueprint"

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)

Resources

Note: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course

1. BPRT 222 Manual
2. Carpentry 3RD Edition – Lewis and Vogt
3. Print Reading for Residential Construction – Fourth Edition

FRMG 220 - Floor Framing

Credit Units: 3.00

You will determine the requirements to lay out, cut and assemble a framed floor system (including stairwells and chimney holes). You will also discuss and erect engineer designed floor trusses.

FRMG 220 – Floor Framing Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Design and construct beams and supports					
▪ Define types of floor framing					
▪ Design and install types of sills					
▪ Design and construct beams					
▪ Design and install supports for beams					
2. Construct Conventional Floor Systems					
▪ Interpret, layout and install conventional floor framing					
3. Install Floor Sheathing					
▪ Install floor sheathing					
4. Assemble Engineered Floor Systems					
▪ Install I joists					
▪ Install open web joists					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark of 60%
- multiple choice test

Example

The name given to the floor member that supports the header(s) of an opening is:

- a) tail joist
- b) cripple joist
- c) double joist
- d) trimmer joist

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Performance Test (Practical Demonstration)

Demonstrate ability to layout a floor joist header: Performance Test 4

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)

Resources

Notes: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course.

1. FRMG 220 Manual
2. Carpentry – Third Edition Lewis & Vogt

FRMG 221 - Wall Framing

Credit Units: 5.00

The course provides theory and hands on experience in laying out studding and rough openings. You will cut and assemble wood frame walls, steel stud walls and ceiling joists. The course content includes installing strapping, blocking and furring. You will learn how to frame preserved wood foundations and identify timber construction.

FRMG 221 – Wall Framing Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Construct Wall Framing Systems					
▪ Describe types of wall framing					
▪ Frame openings in exterior walls					
▪ Install backing					
▪ Layout exterior wall plates					
▪ Frame an exterior wall					
▪ Install bracing or wall sheathing					
▪ Install ceiling joists					
▪ Describe backing and furring requirements					
▪ Frame interior partitions with wood studs					
▪ Frame interior partitions with steel studs					
▪ Install steel door frames in steel stud walls					
2. Identify Procedures for Permanent Wood Foundations					
▪ Construct permanent wood foundations					
▪ Frame floors on PWF					
3. Identify Procedures for Permanent Wood Foundations					
▪ Construct permanent wood foundations					
▪ Frame floors on PWF					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the written theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark of 60%
- multiple choice test

Example

The measurement from the end of the plate to the first stud line for studs spaced 16" O.C. is:

- a) 16"
- b) 16 3/4"
- c) 15 3/4"
- d) 15 1/4"

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Performance Test (Practical Demonstration)

Demonstrate ability to layout a wall plate - Performance Test 6

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)

Resources

Note: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course

1. FRMG 221 Manual
2. Carpentry – Third Edition Lewis & Vogt

FRMG 222 - Roof Framing

Credit Units: 5.00

You will receive theory and practical experience in constructing flat, gable and hip roofs according to building code. You will learn how to lay out, assemble, erect and brace engineered roof trusses.

FRMG 222 – Roof Framing Mastery: I am able to demonstrate it well enough to teach it to someone else. Competent: I can work independently to apply the outcome. Functional: I need some assistance in using the outcome. Learning: I am developing skills and knowledge for this area. None: I have no experience with the outcome.	Mastery	Competent	Functional	Learning	None
1. Construct Conventional Gable and Shed Roofs					
▪ Identify various types of roofs and roof terminology					
▪ Perform gable roof calculations					
▪ Layout and cutting of ridge and common rafters					
▪ Design and install supports for beams					
2. Construct Conventional Hip Roofs					
▪ Calculate and layout the ridge board and hip rafters					
▪ Calculate and layout hip jack rafters and assemble hip roof components 2					
3. Assemble Engineered Roof Trusses and list advantages of using trusses					
▪ Identify types of roof trusses and list advantages of using trusses					
▪ Install roof trusses					
4. Frame a Gable and Hip Roof Using Metric					
▪ Perform gable roof calculations using metric					
▪ Perform hip roof calculations using metric					

PLAR Assessment Methods

If you qualify for PLAR, you will be asked to demonstrate your knowledge in the following manner.

Complete the theory test ([Refer to Appendix D – Exam Blueprint](#))

- passing mark is 60%
- multiple choice test

Example

Trusses achieve their strength through the designed use of:

- a) triangles
- b) straight lines
- c) right angles
- d) rectangles

If needed, complete Proctor Forms Appendix C (Upon approval from Program Head)
[See Step 4 – Action Plan.](#)

Performance Tests (Practical Demonstration)

- Demonstrate ability to lay out a common rafter – Performance Test 1
- Demonstrate ability to lay out a hip rafter – Performance Test 2
- Demonstrate ability to lay out for roof trusses – Performance Test 3

Evidence file– (An interview may required to clarify evidence)

Submit the following evidence:

- Learning outcomes checked and verified by an employer/customer.
- Letter of validation from employer(s)

Resources

Notes: A PLAR candidate may find it beneficial to review the following material in preparation for the assessment. The resources may be referred to, but are not required to PLAR the course.

1. FRMG 222 Manual
2. Carpentry – Third Edition - Lewis & Vogt

Pre-Employment Carpentry



Appendix A & B Employer Validation Letter & Checklists



SIAST

SASKATCHEWAN INSTITUTE OF
APPLIED SCIENCE AND TECHNOLOGY

Employer's Business Letterhead

Sample Letter of Validation

_____ (Candidate's name) has performed each of the critical learning outcomes at a competent level at each of the identified bullets on the attached copy of the validation checklist for:

Name of Validator: _____

Employer: _____

Job Title: _____

Telephone: _____

Fax: _____

E-Mail: _____

General comments regarding the candidate's performance (optional):

Signature: _____

Date: _____

Note to PLAR Candidate:

The information within this letter must be completed and signed by your employer/supervisor or designate and printed on official letterhead indicating the place of employment who is verifying your validation checklist. The supervisor or designate is responsible for ensuring your validation checklist accurately reflects your abilities in each area identified. A copy of the signed and dated validation checklist for _____ must be included with the Letter of Validation and returned to your PLAR assessor at SIAST.

**Prior Learning Assessment and Recognition (PLAR)
BPRT 127, Construction Documents
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for BPRT 127:

Please complete the PLAR Validation Checklist for BPRT 127. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Use Basic Residential Blueprints <ul style="list-style-type: none"> ▪ Identify various components of construction drawings ▪ Interpret blueprints 				
2. Interpret Building Codes <ul style="list-style-type: none"> ▪ Interpret the National Building Code ▪ Describe Canada's national standards system ▪ Interpret building codes 				
3. Prepare a Quantity Survey <ul style="list-style-type: none"> ▪ Identify quantity survey procedures for excavations ▪ Identify quantity survey procedures for footings and pilings ▪ Identify quantity survey procedures for foundation walls ▪ Identify quantity survey procedures for concrete slabs 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
SFTY 129, Construction Safety
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for SFTY 129:

Please complete the PLAR Validation Checklist for SFTY 129. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Identify Occupational Health and Safety Regulations <ul style="list-style-type: none"> • Identify occupational health and safety legislation 				
2. Select Personal Protective Clothing and Equipment <ul style="list-style-type: none"> • Identify noise hazards and hearing protection • Select suitable eye protection • Identify respiratory protection 				
3. Identify Fall Protection Equipment <ul style="list-style-type: none"> ▪ Construction safety 				
4. Recognize Unsafe Working Environments <ul style="list-style-type: none"> • Identify hazards when working in confined spaces and excavations • Identify housekeeping requirements • Describe hazards associated with material handling and lifting • Describe harassment in the workplace 				
5. Practice Fire Safety <ul style="list-style-type: none"> ▪ Practice fire safety 				

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
6. Identify The Workplace Hazardous Material Information System (WHMIS) <ul style="list-style-type: none"> • Identify workplace hazardous material information system • Describe hazards working in extreme cold or heat conditions • Describe hazards with blood- born pathogen infections 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
MATE 126, Building Materials
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for MATE 126:

Please complete the PLAR Validation Checklist for Mate 126. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Identify the Structure of Wood <ul style="list-style-type: none"> • Identify the structure of wood • Identify the classes, characteristics and uses of wood • Identify the cuts, sizes and seasoning of lumber • Identify the defects and grades of lumber • Identify manufactured lumber 				
2. Identify the Types of Panel Products Used in the Construction Process <ul style="list-style-type: none"> • Describe the species and grades of common plywood • Describe the features of particle board, paneling and hardboard and their purposes 				

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
3. Identify the Proper Storage for Various Building Materials <ul style="list-style-type: none"> Describe procedures for storing wood products Describe procedures for storing perishable goods 				
4. Identify Mechanical Fasteners and Procedures for their Use <ul style="list-style-type: none"> Identify types of nails Identify types of screws Identify types of bolts Identify types of hollow wall fasteners and installation procedures Identify types of solid wall fasteners and installation procedures 				
5. Identify Metal, Plastic and composite products used in Carpentry <ul style="list-style-type: none"> Identify various structural steel shapes Identify the reinforcement used in concrete Identify various other metal components used in buildings Identify the different plastic products and composite products used in the construction 				

Validator's Signature: _____

Date: _____

Prior Learning Assessment and Recognition (PLAR)
EQPT 126, Tools
Employer Documentation of Work Experience

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for EQPT 126:

Please complete the PLAR Validation Checklist for EQPT 126. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Use Hand Tools <ul style="list-style-type: none"> • Describe procedures for using measuring tools • Describe procedures for using layout tools • Describe procedures for using testing tools • Identify the types of hand saws, their use and maintenance • Describe types of screw drivers and procedures for their use • Describe types of hammers and procedures for their use • Describe types of staplers and procedures for their use • Use dismantling tools • Describe the procedures for using knives and axes • Identify, use and maintain planes • Identify, use and maintain chisels • Identify stationary grinders and their parts • Describe procedures for operating grinders • Identify procedures for the use of boring and drilling tools • Identify and use abrading tools and sand paper • Describe and use clamps and vices 				

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
2. Use Portable Power Tools <ul style="list-style-type: none"> • Identify AC and DC electrical systems • Identify the procedures for operating (AC) drills • Identify the procedures for operating (DC) drills • Identify the procedures for operating rechargeable (DC) drills • Identify the procedures for operating electric hammer drills • Identify the procedures for operating the sabre and reciprocating saws • Identify the procedures for operating portable electric circular saw • Identify the procedures for operating power mitre saw • Identify the procedures for operating electric chain saw • Identify the procedures for operating portable sanders • Identify the procedures for operating routers • Identify the procedures for operating electric planes • Identify the procedures for operating (AC) drills • Operate the plate joiner • Identify the compressed air system 				
3. Use Stationary Power Tools <ul style="list-style-type: none"> • Operate stationary drills • Operate the table saw • Operate the radial arm saw • Operate the band saw • Operate stationary sanders • Operate a power jointer • Operate the thickness planer 				
4. Use Powder Actuated Tools <ul style="list-style-type: none"> • Identify, operate and maintain tools 				
5. Use an Oxy-Acetylene Cutting Torch <ul style="list-style-type: none"> • Identify oxy-acetylene safety • Identify, assemble and operate oxy-acetylene equipment 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
BPRT 222, Blueprints and Quantity Survey
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for BPRT 222:

Please complete the PLAR Validation Checklist for BPRT 222. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Interpret Residential Blueprints <ul style="list-style-type: none"> • Describe working drawings and blueprints • Read elevation drawings • Read floor plans and basement plans • Read blueprints for symbols and notations • Read blueprints for structural, detail and plot plan information • Read blueprints for trade information 				
2. Prepare a Quantity Survey for Residential Framing and Exterior Finish <ul style="list-style-type: none"> • Take -off materials for; floor framing, wall framing, roof framing • Take off materials for roof coverings, cornice and exterior cladding 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
Framing 220, Floor Framing
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for FRMG 220.

Please complete the PLAR Validation Checklist for FRMG 220. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Design and construct beams and supports <ul style="list-style-type: none"> • Define types of floor framing • Design and install types of sills • Design and construct beams • Design and install supports for beams 				
2. Construct Conventional Floor Systems <ul style="list-style-type: none"> • Interpret, layout and install conventional floor framing 				
3. Install Floor Sheathing <ul style="list-style-type: none"> • Install floor sheathing 				
4. Assemble Engineered Floor Systems <ul style="list-style-type: none"> • Install I joists • Install open web joists 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
Framing 221, Wall Framing
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for FRMG 221.

Please complete the PLAR Validation Checklist for FRMG 221. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Construct Wall Framing Systems <ul style="list-style-type: none"> Describe types of wall framing Frame openings in exterior walls Install backing Layout exterior wall plates Frame an exterior wall Install bracing or wall sheathing Install ceiling joists Describe backing and furring requirements Frame interior partitions with wood studs Frame interior partitions with steel studs Install steel door frames in steel stud walls 				
2. Identify Procedures for Permanent Wood Foundations <ul style="list-style-type: none"> Construct permanent wood foundations Frame floors on PWF 				
3. Identify Structural Timber Construction <ul style="list-style-type: none"> Describe principles of structural timber construction 				

Validator's Signature: _____

Date: _____

**Prior Learning Assessment and Recognition (PLAR)
Framing 222, Floor Framing
Employer Documentation of Work Experience**

Worker/Student: _____

Company's Name: _____

Employer's Name: _____ PH #: _____

Position: _____

Number of months of work experience: _____

Dates employment: _____

Note to Employer/Customer Verifying the Critical Learning Outcomes for FRMG 222.

Please complete the PLAR Validation Checklist for FRMG 222. Verify that the PLAR candidate has performed each of the learning outcomes, then sign and date below and include with the Letter of Validation.

Learning Outcomes	PERFORMANCE			Optional COMMENTS
	satisfactory	unsatisfactory	N/A	
1. Construct Conventional Gable and Shed Roofs <ul style="list-style-type: none"> • Identify various types of roofs and roof terminology • Perform gable roof calculations • Layout and cutting of ridge and common rafters • Design and install supports for beams 				
2. Construct Conventional Hip Roofs <ul style="list-style-type: none"> • Calculate and layout the ridge board and hip rafters • Calculate and layout hip jack rafters and assemble hip roof components 				
3. Assemble Engineered Roof Trusses and list advantages of using trusses <ul style="list-style-type: none"> • Identify types of roof trusses and list advantages of using trusses • Install roof trusses 				
4. Frame a Gable and Hip Roof Using Metric <ul style="list-style-type: none"> • Perform gable roof calculations using metric • Perform hip roof calculations using metric 				

Validator's Signature: _____

Date: _____

Pre-Employment Carpentry



Appendix C Proctor Form



SASKATCHEWAN INSTITUTE OF
APPLIED SCIENCE AND TECHNOLOGY



SIAST

SASKATCHEWAN INSTITUTE OF
APPLIED SCIENCE AND TECHNOLOGY

1. If you wish to write a theory exam off campus, please return this completed form to your SIAST program. Request this wish at [Step 4 – Action Plan](#). The exam and a return envelope will be mailed to the exam proctor. You can write the exam under secure conditions when it is convenient to both of you.
2. Your exam proctor will mail the exam to the relevant SIAST campus (your point of contact for your PLAR challenge).

Program Head
Carpentry Program
SIAST Palliser Campus
PO Box 1420
Moose Jaw, SK S6H 4R4

Program Head
Carpentry Program
SIAST Woodland Campus
PO Box 3003
Prince Albert, SK S6V 6G1

Exam **PROCTOR** FORM FOR
PRIOR LEARNING ASSESSMENT

The exam supervisor should be a professional (teacher, RCMP, RN, secretary, clergy, etc.) and must be a non-relative.

EXAM SUPERVISOR

Name: _____

Address: _____

Postal Code _____

Occupation: _____

Place of employment: _____

Business phone: _____ Home phone: _____

Student's name: (please print) _____

List Course _____

Signature of exam supervisor

Pre-employment Carpentry



Appendix D Pre-Employment Carpentry Course Blueprint



SIAST

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APPLIED SCIENCE AND TECHNOLOGY

Pre-employment Carpentry Test Blueprint

Title of Course	Learning Outcomes Per Course	Number of Exam Questions	Percentage of Questions per learning outcome
Floor Framing FRMG 220	<ol style="list-style-type: none"> 1. Construct conventional floor systems. 2. Install floor sheathing. 3. Assemble engineered floor systems. 	24 questions	LO 1 - 50 LO 2 - 10 LO 3 - 40
Wall Framing FRMG 221	<ol style="list-style-type: none"> 1. Construct wall framing systems. 2. Identify procedures for permanent wood foundations. 3. Identify structural timber construction. 	32 questions	LO 1 - 80 LO 2 - 10 LO 3 - 10
Roof Framing FRMG 222	<ol style="list-style-type: none"> 1. Construct conventional gable and shed roofs. 2. Construct conventional hip roofs. 3. Assemble engineered roof trusses and roof sheathing. 	32 questions	LO 1 - 40 LO 2 - 40 LO 3 - 20
Construction Safety SFTY 129	<ol style="list-style-type: none"> 1. Identify safety regulations (OHS) 2. Select personal protective clothing and equipment. 3. Identify fall protection equipment. 4. Recognize unsafe working environments. 5. Practice fire safety. 6. Identify industrial health hazards. 	27 Questions	LO 1 - 15 LO 2 - 10 LO 3 - 25 LO 4 - 30 LO 5 - 10 LO 6 - 10
Construction Documents BPRT 127	<ol style="list-style-type: none"> 1. Use basic residential blueprints. 2. Interpret building codes and permits. 3. Prepare a quantity survey 	26 questions	LO 1 - 65 LO 2 - 20 LO 3 - 15

Trade Math MATH 127	<ol style="list-style-type: none"> 1. Operate and electronic calculator. 2. Perform mathematical calculations used in the construction process. 3. Use metric and imperial systems if weights and measure. 	26 questions	LO 1 – Students will be expected to use the calculator throughout the exam, but there will be no specific questions on the use of a calculator. LO2 – 21 questions LO3 – 5 questions
Building Materials MATE 126	<ol style="list-style-type: none"> 1. Identify types of wood and lumber used in the construction process. 2. Identify types of panel products used in the construction process. 3. Identify proper storage for various building materials. 4. Identify mechanical fasteners and procedures for their use. 5. Identify metal, plastic and composite products used in carpentry. 	32 questions	LO 1 - 25 LO 2 - 20 LO 3 - 15 LO 4 – 25 LO 5 – 15
Blueprints and Quantity Survey BPRT 222	<ol style="list-style-type: none"> 1. Interpret residential blueprints. 2. Prepare a quantity survey for residential framing and exterior finish. 	27 questions	LO 1 - 60 LO 2 - 40
Tools EQPT 126	<ol style="list-style-type: none"> 1. Use hand tools. 2. Use portable power tools. 3. Use stationary power tools and equipment. 4. Use powder actuated tools. 5. Use an oxy-acetylene cutting torch. 	34 questions	LO 1 - 30 LO 2 - 35 LO 3 - 35 (Separate Tests) LO 4 – PAT Test (41 questions) LO 5 – WELD Test 1 (22 questions)