

RIICRC320E

Seal Concrete Pavements

Learner Guide Instructions

Who is this document for?

The learner.

What is in this document?

- Course training content (this matches the PowerPoint Presentation).
- Review questions.

What do you need to do before you use it for the first time?

1. Rebrand the document.
2. Review the document as part of your validation process.

See the 'Read Me First' document for a complete set of instructions on how to use these resources.



LEARNER GUIDE

RIICRC320E Seal Concrete Pavements

Learner Name:	
Learner ID:	
Learner Contact Number:	
Learner Email Address:	
Date Training Commenced:	

This Book Contains:

- Course Information.
- Review Questions.

Evaluation Copy Only

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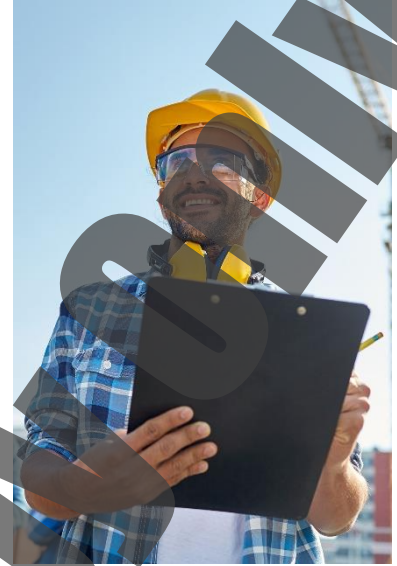
1.1 Introduction

This training course is based on the national unit of competency **RIICRC320E – Seal Concrete Pavements**.

This course will cover the following key aspects of concrete pavement sealing operations:

- ◆ Review of work requirements and documentation.
- ◆ Management of work health, safety and environment.
- ◆ Plan and prepare to seal concrete pavements.
- ◆ Seal concrete pavements using hand and power tools.
- ◆ Management of clean-up activities and tools.

For the purposes of this training material, concrete is defined as a composite building material made from fine and coarse aggregates blended with a combination of cement, water and additives that hardens or cures over time.



1.1.1 Access and Interpret Documentation

When sealing concrete pavements, each job is accompanied by a set of records. Understanding what information is required and how to interpret the information is essential. Different companies use various templates and terminology, so clarifying what you need ahead of time and how to collate, store and manage the information on the day will ensure that your job occurs without delay.



The types of documentation that may be required include:

- ◆ Health, safety and environment – Toolbox talks, site induction handouts, work method statements, health, safety and environmental policies and procedures, hazard report forms, incident reports, site inspection checklists, site health, safety and environmental plans, safety data sheets.
- ◆ HR – Training plans, certificates of competency, codes of conduct, payroll and timesheet procedures and documents.
- ◆ Concrete-sealing task specific – Specifications, designs, quality, inspection and testing plans.
- ◆ Operational – Site maps, work instructions, project plans, construction plans.



The method selected to seal pavement joints will be based upon the concrete specification taking into account the width of the crack or joint, the environment and pavement type and use. For instance, a high-volume pedestrian pavement may be treated differently to a highway with little to no pedestrian traffic.

Specifications may be specific to the site or project, standard industry specifications, or set by government agencies.

Trial work may be included in the concrete specification when it is considered necessary to test the sealant treatment method selected.



1.1.1.1 Policies and Procedures

Policies and procedures are used to set out the work health and safety requirements of the organisation for the task or activity being conducted.

A policy is a statement of intent to guide decisions and achieve outcomes consistent with the company culture.

It will often contain the following aspects:

- ◆ Statement of overall intent or objectives of the policy.
- ◆ General responsibilities.
- ◆ What employees can expect from the company.
- ◆ What the company expects from employees.
- ◆ What the wider community can expect from the company.



Organisational policies should be simple to read, easily accessible, regularly reviewed to ensure they represent the culture and maturity of the company and be endorsed by appropriate managers or leaders.



The Work Health and Safety Policy is the document which outlines the commitment of the organisation to maintaining the health, safety and welfare of employees and others in the workplace. It outlines the WHS goals of the organisation and sets the tone for all other WHS procedures, plans and processes.

It is important for organisations to ensure that policies are well communicated to the workforce and understood as these are key documents to deliver management vision and intent for the company.

Procedures are used to provide detail on how to meet the objectives of policies by providing further information, structure, rules or guidance specific to the task or activity being performed.

A WHS procedure gives specific instructions on how to safely undertake tasks and activities such as how to seal concrete pavements and use key items of plant and equipment required for the task.

They may include:

- ◆ Steps to take.
- ◆ Who is responsible.
- ◆ Detail on rules and standards to be applied.



Each procedure needs to be written for the conditions on site and the methods being used, and be consulted and communicated to the team prior to work commencing.

1.1.1.2 Legislation



Laws (or Acts) are broad rules made by governments and courts which apply to everyone. There are consequences for not following the law because they help to keep everyone safe.

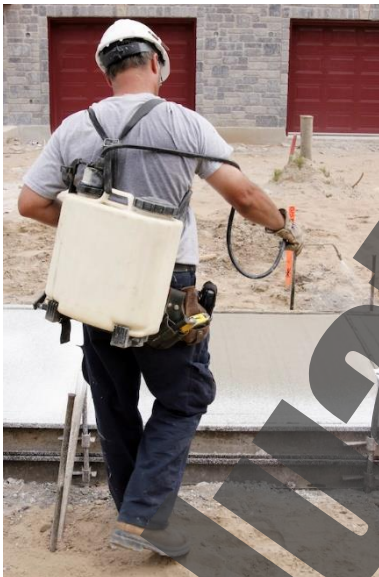
Placers of concrete, including those performing concrete sealing operations have a legal responsibility to ensure that their work activities and the resulting concrete structure are free from hazards which may cause harm.

The WHS Act describes the duties of the different workplace parties in relation to their WHS responsibilities.

The WHS Act requires that a Person Conducting Business or Undertaking (PCBU, otherwise known as the employer) has a duty of care for ensuring the health and safety of workers and others at the workplace.

This includes providing:

- ◆ A safe place to work.
- ◆ Safe plant and structures to work in or on.
- ◆ Safe systems of work.
- ◆ Safe plant, structures and substances to use, handle and store.
- ◆ Adequate facilities for welfare including amenities and break areas.
- ◆ Information, training, instruction and supervision.
- ◆ Health and workplace monitoring as necessary.



Designers, manufacturers, suppliers, constructors and installers also have health and safety duties under the Act.

Workers who are placing concrete need to ensure that the product that they produce (for example the footpath, road, drain or bridge) are free from hazards to others. This includes while the work is taking place as well as afterwards when the concrete is serving its intended use.

The methods used to seal the concrete will have a direct impact on the final product, the quality of the finish and the potential for faults or issues. Examples include:

- ◆ Using sealants to prevent the negative effects of concrete cracking when pavements are exposed to different weather conditions compromising the integrity of the concrete.
- ◆ Preventing the ingress of dust and other contaminants to extend the life span of the concrete.

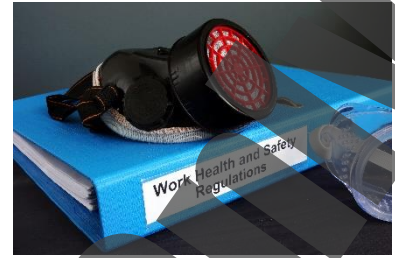
1.1.1.3 Regulations

Regulations support laws (or Acts) by imposing mandatory requirements for managing WHS and providing more detailed information on the duties different people must follow to comply with the law.

They supplement the laws by providing more detailed information on duties that apply to specific hazards, other procedures and obligations.

The regulations cover general requirements for hazard identification, risk assessment and risk controls for high risk areas.

This means that the worksite, tools, equipment and procedures need to be assessed for risks and have those risks appropriately controlled before work can start to ensure that the activities do not pose risks to any person.



1.1.1.4 Codes of Practice



Codes of Practice guide individuals on how to meet their 'duty of care' responsibilities.

A Code of Practice provides practical guidance on ways to eliminate or control known risks. They are seen as the community standard for hazard management.

They may be referred to when seeking information on how to eliminate or control known risks or, where there has been a failure of a Duty of Care, as an example of what should have been done. They can also be used to support a prosecution.

Codes of Practice are legal documents which provide further information about the requirements for construction work including the building of roads, bridges and other civil concreting works.

Codes of Practice for construction include information on:

- ◆ The risk management process.
- ◆ Duties of persons performing construction work.
- ◆ Safe work method statements.
- ◆ WHS management plans.



Codes of Practice should be followed unless there is another solution that achieves the same or better standard of health and safety.

Refer to your local health and safety regulator's website for more information about the Codes of Practice that may apply in your state or territory.

Review Questions

1.

What document contains information about the method selected to seal pavement joints?

2.

Which document gives specific instructions on how to safely undertake tasks and activities and use key items of plant and equipment required for the task?

3.

What is a law (or Act)?

4.

How do regulations support the laws (or Acts)?

5.

Other than the risk management process, what are three (3) things that Codes of Practice for construction include information on?



1.

2.

3.

1.2 Plan and Prepare for Work

Prior to starting any work, you will need to plan how you will go about it.

This includes making sure that you understand your work instructions, identifying hazards, implementing risk controls and selecting and checking equipment.



1.2.1 Planning for Work

Before any work can begin, ensure that you have adequately prepared for the work activity so that it runs smoothly on the day by planning your work. Good preparation is about being organised and having a plan.

Plan for concrete sealing operations by following these steps:



1. Review the work plan and confirm the location, sealing method and materials to be used.
2. Inspect and obtain the appropriate plant, equipment and materials to perform the task and place it at the work location.
3. Ensure safety checks and risk assessments have been completed.
4. Implement safety and environmental control measures such as water management devices.
5. Have adequate people and plant to perform the task in a timely manner.
6. Ensure that traffic management controls are in place.
7. Check the weather, hazards and other external factors that may impact your work.
8. Perform daily communication of the roles, responsibilities, hazards and daily tasks to the team.



Concrete sealing operations can involve multiple stakeholders and work groups. Delays to the program can be costly.

Be prepared for changes to occur by knowing the potential risks to your plan. This might include changes to the weather, operating conditions, equipment failures and other unforeseen events. Make sure that there are contingency plans in place to deal with any issues that arise.

1.2.2 Communication

Good communication with all stakeholders will ensure that your work runs smoothly on the day.

Take the time to put in place the communication processes and assign responsibility for communicating all necessary information, updates and changes as they occur.

Stakeholders who may need information include:

- ◆ Customers.
- ◆ Concrete suppliers.
- ◆ Truck drivers.
- ◆ Delivery personnel.
- ◆ Pump operators.
- ◆ Testers.
- ◆ Engineers and designers.
- ◆ Concrete placers.
- ◆ Safety personnel.
- ◆ Councils.
- ◆ Neighbours.
- ◆ Site visitors.
- ◆ Certifiers.



When communicating, it is important to be clear and concise with work instructions and key information. Think about the language and literacy needs of the personnel and how you can present your messages.

Using a combination of visual cues such as signage, symbols and pictures can help to make the message easier to understand.

Communicate changes on site as they occur by holding site meetings and using active supervision.

1.2.3 Address Risks, Hazards and Environmental Issues



Concrete pavement work sites have many risks specific to the activity and environment.

Performing a risk assessment prior to work commencing is a good way to identify and prepare for potential hazards and apply control measures. There is a range of information available from regulators and industry groups such as concrete associations which have been developed for concrete related activities that provide guidance on hazards and suggested controls for this activity.

In performing your risk assessment consider the types of activities being conducted, how workers will perform their tasks and where on the site they will occur.

Safety hazards to consider include:

- ◆ Traffic management hazards – Entry/exit, travel to the work location, turning area, reversing.
- ◆ Ground conditions – Soft ground, uneven ground, soft edges, unprotected or unmarked edges.
- ◆ Pedestrian management – Persons on foot in trafficked areas including concrete sealing personnel.
- ◆ Slips, trips and falls – Slipping on uneven ground, tripping on exposed edges.
- ◆ Manual handling – Frequent bending, lifting and handling equipment.
- ◆ Contact with chemicals – Inhaling or ingesting chemicals and dust causing health issues and injury, chemical burns from incorrect dosing and inadequate PPE.



As part of planning for concrete pavement sealing operations sites must consider the impact to the environment.

In doing so an environmental management plan may be developed which outlines the potential hazards and risks to the environment and the required control measures. The content of these plans should be included in site documents and information such as inductions, safe work procedures and toolbox talks.

Environmental hazards may include:

- ◆ Spills – Contamination of waterways through spills of concrete, fuels and sealants.
- ◆ Uncontained use of sealants and chemicals – Contaminated water and chemicals washing onto the ground and into waterways.
- ◆ Creation of dust through cutting and blowing activities.



Once you have identified hazards and risks on site it is important to make sure that you have communicated them to others. This may be through a hazard report, speaking directly to the supervisor or including it in your work procedures.

1.2.3.1 Reporting Hazards

It is important to communicate information about hazards in a way that ensures that they are dealt with promptly before they can pose a hazard to yourself or others.

When providing hazard information be clear and timely in your communication:

- ◆ Be clear – Provide specific information about the hazard, fault or issue such as when it occurred, what situation or circumstance created it, where exactly it is on the equipment.
- ◆ Be timely – Report the information immediately to the appropriate person such as your supervisor or maintenance manager.



Ensure that your communication is adequate to enable the issue to be resolved.



Use tools where necessary to assist with locating hazards such as a tag, label or visual marker (such as witches hats or danger tape).

Use pictures and diagrams in addition to a written report where necessary to identify the location of the hazard.

If you are the person receiving the information, confirm what you have heard by:

- ◆ Repeating back to the person the issue as you have understood it.
- ◆ Ask follow-up questions for clarification.
- ◆ Pay attention to the person speaking and note important details.



Refer to your organisational procedures for guidance on how to report issues appropriately.

1.2.4 Control Identified Hazards



Once you have identified that a hazard exists you will need to manage it through implementing suitable controls.

Control measures prevent the identified hazard from causing harm.

When implementing your control measures consider what is practical for the site to apply and use the Hierarchy of Hazard Control to select the most effective control measures for the circumstances. Try to apply control measures that are higher up the hierarchy wherever practicable to ensure they provide the best level of protection.

The below table contains further details about the different levels of the Hierarchy of Hazard Control:

Hierarchy Level	Explanation	Example Control Measures
1. Elimination	Completely remove the hazard. This is the best kind of hazard control.	Animals and pets may be banned from site to prevent accidents.
2. Substitution	Swap a dangerous work method or situation for one that is less dangerous.	Certain chemicals may be replaced with those which are less harmful if contact with the skin occurs. Reversing beepers on trucks may be replaced with squawkers so the sound doesn't carry as far impacting neighbours.
3. Isolation	Isolate or restrict access to the hazard.	Exclusion zones may be established to separate personnel and operating plant. Guards are placed over the cutting wheel to prevent access to moving parts. Sediment control fences installed to prevent dirty runoff water from leaving site damaging the environment.
4. Engineering Controls	Use equipment to lower the risk level.	Vacuums and filters may be used to collect dust and foreign materials. Wheel washes may be constructed at the exit to the site to ensure that all trucks have clean wheels before exiting onto public roads and do not contaminate waterways.
5. Administrative Controls	Site rules and policies attempt to control a hazard.	Reversing trucks require a person to be the spotter while the task is being performed. Traffic control signage used to manage vehicles entering and exiting. Bins for different types of waste with signage to store and separate waste material.
6. Personal Protective Equipment	The least effective control. Use PPE while you carry out your work.	PPE such as hearing protection, safety glasses or gloves.

1.2.4.1 Select and Wear Personal Protective Equipment

Personal Protective Equipment (PPE) should be selected and worn in accordance with the site requirements. Many sites will define the minimum PPE required in their site induction information and site entry signage. In addition to this, you should be aware of any hazard specific risks, for example hazardous substances (such as curing compounds) which are being used, and apply the PPE appropriate to the situation.

Common PPE may include:

- ◆ Safety glasses.
- ◆ Hearing protection.
- ◆ Gloves.
- ◆ Respirators.
- ◆ Hard hats.
- ◆ Hi-visibility clothing.
- ◆ Safety footwear.





Gloves and safety glasses are commonly used to prevent contact with chemicals when applying curing compounds.

When selecting gloves it is important to select the type of glove appropriate for the task. Tight-fitting gloves will prevent substances from entering the glove and reduce the likelihood of skin reactions or burns. Inspect the gloves prior to usage to identify any tears or openings to ensure that the glove provides the best protection possible.

Respirators are a mandatory requirement for cutting and cleaning operations where high-pressure equipment is in use creating dust.

In order for PPE to be effective it needs to be in good condition, without damage and be worn in the manner prescribed by the manufacturer. Remember PPE is the very last means of defence so it's important that it is applied correctly.

1.2.4.2 Signage

Signage can be useful to display important information and deliver messages quickly and easily.

In order to identify and confirm which signs may be required, sites may use a combination of site checklists, risk assessments and safety and environmental management plans and safety and environmental procedures.

The use of signage is an important tool for the communication of critical health, safety and environmental information about potential hazards, control measures and site rules to ensure the safety of all persons entering the site.

Signs with pictures can be an effective method to help to overcome potential language and literacy barriers. They can be placed at the location of the hazard as a warning and be used to directly communicate with anyone in the vicinity.



Certain colours such as red and yellow are commonly used to communicate that danger is present and to take caution and will often be used in barricading and warning tape as well as signage to indicate a hazard is present or the need to take care.

Key safety measures such as PPE requirements, exclusion zones, location of emergency equipment and other essential information may also be included on site documentation such as safe work method statements and induction handouts with use of pictures, symbols or icons.

You may see the following signs in use on construction sites:

- ◆ Site entry.
- ◆ Site office.
- ◆ Sign-in.
- ◆ Parking.
- ◆ Wheel wash.
- ◆ PPE rules.
- ◆ Traffic management signage.
- ◆ Overhead powerlines.



1.2.5 Select Plant, Tools and Equipment

Select plant, tools and equipment that are required to perform the work. Consider the safe handling, ergonomics of design and weight when selecting tools that will be used frequently and for long durations to ensure that personnel do not fatigue or risk injury as a result of poor tool choices.



Consult manufacturers specifications to properly understand the capabilities and limitations of the equipment before use.

Manufacturers' specifications include a range of essential information such as operating limits, setup instructions and health and safety warnings. Once you have reviewed the specification, ensure that relevant information and instructions have been provided to the users of equipment and added to safe work procedures as required.

Always inspect your tools and equipment for faults and damage before use. Look for things like loose handles, frayed leads and missing guarding.

The appropriate tools should be used wherever possible. The use of home-made tools should be avoided.

During concrete sealing the following tools and materials may be utilised depending on the sealing method and substance selected:

Hand Tools:

- ◆ Spline rollers.
- ◆ Brooms and brushes.
- ◆ Measuring tapes.
- ◆ Rulers and depth gauges.
- ◆ Sealant applicators and hand guns.
- ◆ Spatulas for trimming and cleaning.
- ◆ Blowout pipes.



Power Tools:

- ◆ High pressure liquid or liquid/air jets.
- ◆ Powered brushes.
- ◆ Vacuums.
- ◆ Air lances.
- ◆ Mixers or drills with mixing paddles.
- ◆ Generators.
- ◆ Air compressors.



Large items of plant such as concrete cutters and generators often come with their own pre-start equipment inspections which are completed by the plant operator who has been trained in what faults and damage to look for. Ensure that you have discussed the site inspection requirements, minimum safety hardware and key hazards with plant suppliers so that plant arrives in a safe condition and ready to use.

Review Questions

6.

When planning for concrete sealing operations, what should you communicate to the team as part of your daily communications?

7.

How can you ensure that changes on site are addressed and communicated as they occur?

8.

What should you consider when performing a risk assessment?

9.

How can the environment be damaged by uncontained use of sealants and chemicals?