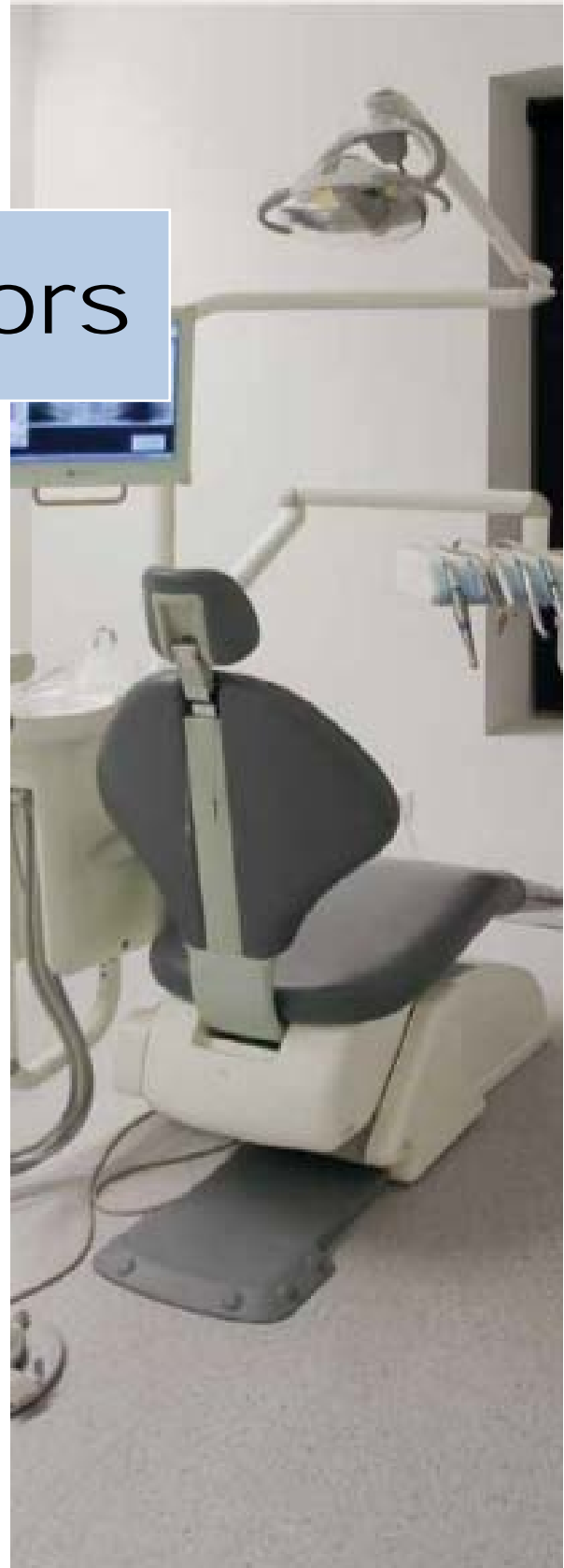


ESD floors

Supporting:

MSFFL3019: Install anti-static resilient floor coverings

MSFFL3020: Install conductive resilient floor coverings



Workbook



Name:

ESD floors

Workbook

Containing learning activities and assignments for the units of competency:

MSFFL3019: Install anti-static resilient floor coverings

MSFFL3020: Install conductive resilient floor coverings

The assignment templates are also available in an electronic 'Word' version, downloadable from the INTAR website at:

www.intar.com.au



ISBN: 978-1-925087-38-3

This training resource forms part of the **Flooring Technology project**, developed and coordinated by INTAR (Industry Network Training and Assessment Resources). To see the on-line versions of the resources available under this project, please go to the INTAR website and follow the links.



Copyright

The original version of this resource was developed by Workspace Training for INTAR members – with the copyright owned by McElvenny Ware Pty Ltd, trading as Workspace Training. Parts of the resource are based on material developed by Workspace Training with funding provided by the Workplace English Language and Literacy (WELL) Program – with copyright owned by the Commonwealth Government under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 Australia Licence. All enquiries regarding copyright should be addressed to:

David McElvenny, Workspace Training, PO Box 1954 Strawberry Hills, NSW, 2012

Email: david@workspacetraining.com.au

Disclaimer

The content of this resource is provided for educational purposes only. No claim is made as to its accuracy or authenticity. The authors, copyright owners and INTAR do not give any warranty nor accept any liability in relation to the information presented in this work.

In all cases, users should consult the original source documents before relying on any information presented in the resource. These source documents include manufacturers' installation guides, Australian Standards, codes of practice and other materials produced by specialist industry bodies and government agencies.

Acknowledgements

The INTAR project team comprises the following people: David McElvenny (Workspace Training) – lead writer and project manager; Kath Ware (Workspace Training) – instructional designer and graphic artist, Jim Vaughan (VCSS) – technical developer and programmer; Alex Vaughan (VCSS) – assistant programmer and voice-over narrator.

All line drawn graphics were produced by Kath Ware. Many of these graphics are based on line drawings or photographs from installation manuals published by floor covering manufacturers.

Most of the on-site work photos were taken by David McElvenny. Some photos showing product samples were supplied by manufacturers, as acknowledged in the text or photo.

Many TAFE teachers, RTO trainers and industry experts have been involved in the development of this resource. Particular thanks go to the following people for providing learning materials, technical advice and feedback:

Craig Bennett – Hunter Institute of TAFE (NSW)

Steven Dalton – Marleston TAFE

Bruce Ottens – Holmesglen TAFE (Victoria)

Chris Shaw – TasTAFE (Tasmania)

William Tree – ACFIT (NSW)

Mark Willis – Armstrong Flooring



Table of contents

Introduction.....	1
Part 1 Learning activities	3
Static electricity in floors.....	5
Anti-static flooring.....	5
Conductive flooring	6
Part 2 Assignment	7
Assignment	9
Practical demonstrations.....	12

Introduction

ESD floors is a 'learning unit' from the Flooring Technology training resource. It supports the following competencies from the *Certificate III in Flooring Technology* (MSF30813):

- *MSFFL3019: Install anti-static resilient floor coverings*
- *MSFFL3020: Install conductive resilient floor coverings*

To be assessed as competent, your assessor will use a range of methods to check your understanding of the concepts presented in the Learner guide for this unit and your practical ability to install ESD floor coverings.

These may include:

- written assignments
- practical demonstrations
- on-the-job discussions about how you go about particular activities
- learning activities undertaken while you're progressing through the unit
- examples of installations you have undertaken
- log book or work diary.

Literacy, numeracy and computer skills

Literacy is the ability to read and write. To complete this qualification, you will need sufficient literacy skills to produce a range of workplace documents. You will also need the skills to be able to read and understand documents such as order forms, installation instructions, project briefs and safe operating procedures.

Numeracy is the ability to work with numbers. Flooring installers need to do lots of measure-ups and calculations, so there will be many opportunities for you to learn and practice your numeracy skills.

When it comes to completing the written assignments for this qualification, a certain level of literacy ability is required to read the questions and write down your answers. There will also be times when you are asked to generate documents on a computer.

Obviously, it's important that you clearly understand what the assignment is asking you to do, and that your submissions are a good reflection of what you really know. So if you're having trouble reading the questions, writing down your answers, or using certain computer programs, make sure you speak to your trainer before you hand the assignment in.

There are various ways your trainer can help you. For example, they may be able to ask the assignment questions verbally and help you to write down your answers. They may also be able to show you sample answers to similar questions, which will let you look at the way they're written and give you hints on how to write your own. You may also be allowed to do the assignment with the assistance of another person.

Applying for RPL

RPL stands for **Recognition of Prior Learning**. It is a form of assessment that acknowledges the skills and knowledge you have gained through:

- on-the-job experience
- formal training in other courses
- life experience, through your hobbies or other outside activities.

If you believe that you are already competent in some or all of the skills covered in this unit, ask your assessor about how to apply for RPL.

Using this workbook

All of the lessons in the Learner Guide for this unit have learning activities at the end. Their purpose is to provide discussion points and questions to help reinforce your understanding of the concepts being presented.

There are also a range of assignments, which appear at the end of each section. These are designed to test your knowledge of the subject matter and ability to submit written responses in an acceptable format.

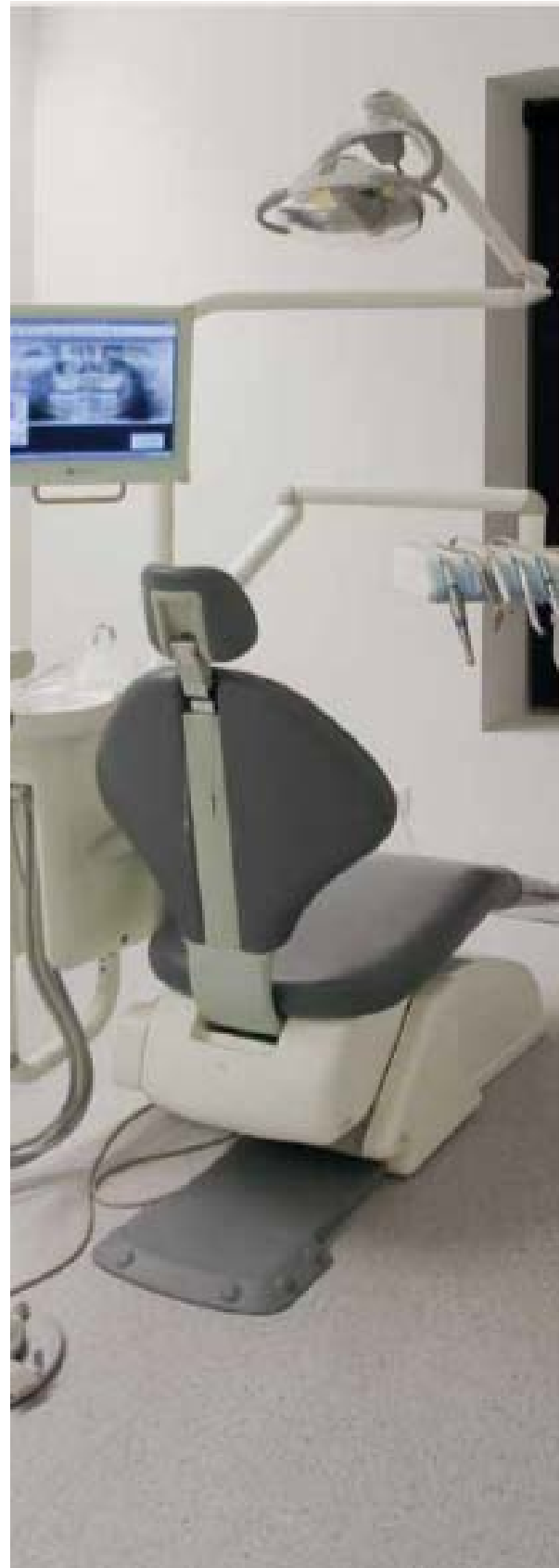
This workbook reproduces all of the learning activities and assignments in a format that lets you handwrite your answers to the questions.

Note that your trainer may ask you to produce a computer-generated document for all of the formal assignments, either printed out in hard copy or submitted electronically. To do this, go to the website version of the unit and look for the *Assignment* link in each section. This will allow you to type your answers into the 'Word' document and then either print it out or email it direct to your trainer as an attachment.

You may also be asked to share your learning activity answers electronically, especially if you are undertaking this unit by distance learning and are linked up with fellow students in other locations. This might be done through group emails or via a social networking site such as Facebook. In these cases, you should use the website resource rather than this workbook.

Part 1

Learning activities



Static electricity in floors

Go to the web link below and select the first video – called: ‘What is Electrostatic Discharge (ESD)?’. Watch the clip and then answer the questions.

<http://www.staticworx.com/articles/videos.php>

1. How many volts of electricity are needed for a person to feel a static discharge?

2. How many volts are needed for static-sensitive electronic devices to be affected by static discharges?

Anti-static flooring

Go to the web link below and select the video called: ‘Testing your ESD floor’. Watch the clip and then answer the questions.

<http://www.staticworx.com/articles/videos.php>.

1. Why can't you use a multimeter with standard probes to test the surface resistance of a floor?

2. What type of probes should you use, and how are they different from standard probes?

Conductive flooring

Go to the web link below and watch the Forbo video clip. Then answer the questions.

<http://www.youtube.com/watch?feature=endscreen&NR=1&v=FPNLNcE8wbc>

1. How does the installer mark out the floor to make sure the copper strip will be laid in a straight line and in the right position?

2. How does he draw a guide line on the wall to ensure that the line is an even distance from the floor?

Part 2

Assignment



Assignment

Name		Date	
-------------	--	-------------	--

1. Anti-static floors

(a) What are the properties of an anti-static floor?

(b) Where are they typically used?

(c) Why aren't anti-static floors described in terms of their surface resistance?

(d) Name a product that satisfies the requirements for an anti-static floor.

2. Static dissipative floors

(a) What are the properties of a static dissipative floor?

(b) Where are they typically used?

(c) What are the surface resistance specifications?

(d) Name a static dissipative floor covering (product name and manufacturer)

(e) What adhesive is recommended for this product?

(f) What extra features do you need to build into the installation of this flooring, beyond the normal installation requirements?

3. Static conductive floors

(a) What are the properties of a static conductive floor?

(b) Where are they typically used?

(c) What are the surface resistance specifications?

(d) Name a static conductive floor covering (product name and manufacturer)

(e) What adhesive is recommended for this product?

(f) What extra features do you need to build into the installation of this flooring, beyond the normal installation requirements?

Practical demonstrations

In this unit we have provided background material to cover the following competencies:

MSFFL3019: Install anti-static resilient floor coverings

MSFFL3020: Install conductive resilient floor coverings

The checklists below set out the sorts of things your trainer will be looking for when you undertake the practical demonstrations for this unit. The performance evidence for the individual competencies are listed separately below.

Make sure you talk to your trainer or supervisor about any of the details that you don't understand, or aren't ready to demonstrate, before the assessment event is organised. This will give you time to get the hang of the tasks you will need to perform, so that you'll feel more confident when the time comes to be assessed.

When you are able to tick all of the YES boxes below you will be ready to carry out the practical demonstration component of this unit.

MSFFL3019: Install anti-static resilient floor coverings

Specific performance evidence	YES
Complete at least one anti-static resilient flooring installation using a conductive acrylic adhesive system (Anti-static flooring includes resilient flooring with a resistance rating from 108 to 1010 ohms)	<input type="checkbox"/>

General performance evidence	YES
1. Follow all relevant WHS laws and regulations, and company policies and procedures	<input type="checkbox"/>
2. Read and interpret plans and written instructions relevant to the tasks	<input type="checkbox"/>
3. Assess the condition of the subfloor to determine its suitability for the installation job	<input type="checkbox"/>
4. Select the appropriate adhesives, trims and accessories	<input type="checkbox"/>
5. Select the correct tools and equipment, and carry out all necessary pre-start checks	<input type="checkbox"/>

6. Plan the sequence of work tasks to maintain efficiency and quality	<input type="checkbox"/>
7. Check the specifications of the linoleum floor covering against the work order	<input type="checkbox"/>
8. Acclimatise the floor covering according to the manufacturer's recommendations	<input type="checkbox"/>
9. Identify hazards and control risks when handling materials	<input type="checkbox"/>
10. Establish starting point and set out working lines	<input type="checkbox"/>
11. Lay out flooring to achieve correct directional sequence, pattern match and joins	<input type="checkbox"/>
12. Mark and cut the linoleum to the required pattern and shape, with minimal waste	<input type="checkbox"/>
13. Use adhesives and edge strips/accessories according to instructions	<input type="checkbox"/>
14. Lay and fix the materials safely and efficiently	<input type="checkbox"/>
15. Set out and install skirting, reducer and edge strips, where required	<input type="checkbox"/>
16. Inspect finished installation for problems and rectify faults, if necessary	<input type="checkbox"/>
17. Store or recycle unused materials	<input type="checkbox"/>
18. Clean and store tools and equipment appropriately	<input type="checkbox"/>
19. Clean up work area and dispose of rubbish properly	<input type="checkbox"/>
20. Accurately complete all required documentation	<input type="checkbox"/>

MSFFL3020: Install conductive resilient floor coverings

Specific performance evidence	YES
<p>Complete at least one static conductive resilient flooring installation with an isolating layer and using a conductive adhesive and earthing strip</p> <p>(Static conductive flooring includes coverings with a resistance reading of 10^4 to 10^8 using a copper grid and isolating layer)</p>	<input type="checkbox"/>

General performance evidence	YES
1. Follow all relevant WHS laws and regulations, and company policies and procedures	<input type="checkbox"/>
2. Read and interpret plans and written instructions relevant to the tasks	<input type="checkbox"/>
3. Assess the condition of the subfloor to determine its suitability for the installation job	<input type="checkbox"/>
4. Select the appropriate adhesives, trims and accessories	<input type="checkbox"/>
5. Select the correct tools and equipment, and carry out all necessary pre-start checks	<input type="checkbox"/>
6. Plan the sequence of work tasks to maintain efficiency and quality	<input type="checkbox"/>
7. Check the specifications of the conductive resilient covering against the work order	<input type="checkbox"/>
8. Acclimatise the floor covering according to the manufacturer's recommendations	<input type="checkbox"/>
9. Identify hazards and control risks when handling materials	<input type="checkbox"/>
10. Establish starting point and set out working lines	<input type="checkbox"/>
11. Install copper grid and isolating layer according to specification	<input type="checkbox"/>
12. Lay out covering to achieve correct directional sequence, pattern match and joins	<input type="checkbox"/>
13. Mark and cut covering to the required pattern and shape, with minimal waste	<input type="checkbox"/>
14. Lay, fix and weld the materials safely and efficiently, according to instructions	<input type="checkbox"/>
15. Set out and install skirting, reducer and edge strips, where required	<input type="checkbox"/>
16. Inspect finished installation for problems and rectify faults, if necessary	<input type="checkbox"/>
17. Store or recycle unused materials	<input type="checkbox"/>
18. Clean and store tools and equipment appropriately	<input type="checkbox"/>
19. Clean up work area and dispose of rubbish properly	<input type="checkbox"/>
20. Accurately complete all required documentation	<input type="checkbox"/>