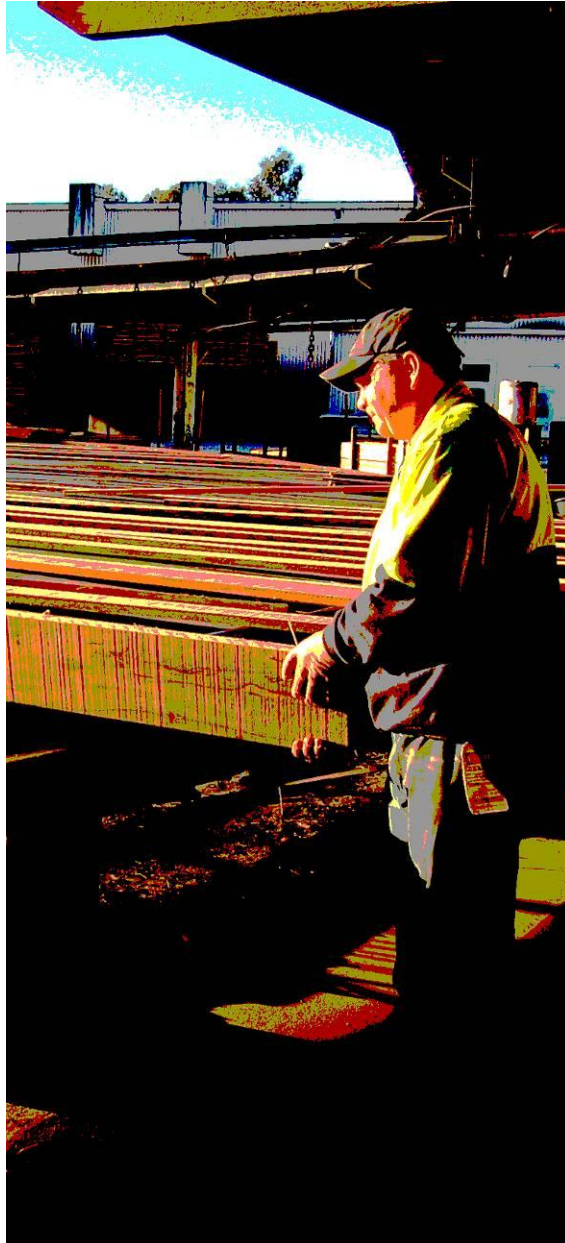


Assessing materials

Learner Guide

Supporting
FPICOR3204B:
Visually
assess materials



Acknowledgements, copyright and disclaimer

Acknowledgements

This learner guide was developed by McElvenny Ware Pty Ltd, trading as Workspace Training. It is a print-based adaptation of the *Assessing materials* e-learning unit developed by McElvenny Ware for the Australian Flexible Learning Framework in 2009.

The Assessing materials e-learning unit is available in two formats:

- as a free 'learning object' download from the Flexible Learning Toolbox Repository at: <http://toolboxes.flexiblelearning.net.au/repository/index.htm>
- as part of the Timber Toolbox, a website resource covering six units from the Forest and Forest Products Training Package (FPI05), available for purchase on a CD through national VET E-learning Strategy at: <http://toolboxes.flexiblelearning.net.au/purchase.htm>.

For more information about the Timber Toolbox, and other e-learning resources developed by McElvenny Ware, go to the Workspace Training website at: <http://www.workspacetraining.com.au/>

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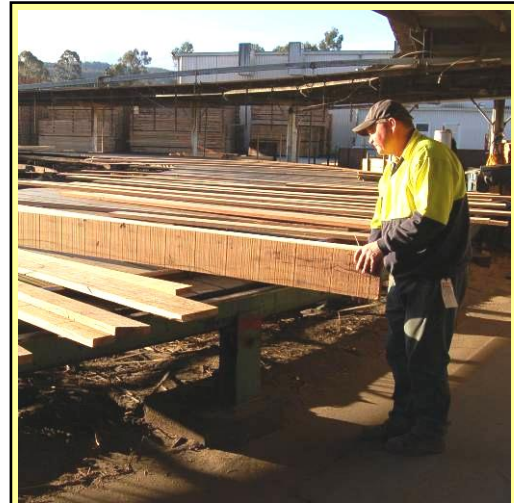
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Introduction

Carrying out a visual assessment of a product or material is an important part of the quality control system in your organisation.

One of the main things that keeps a business profitable is the ability to consistently control the quality of the products it supplies to its customers. This gives the business a reputation for reliability, and the customers more confidence that when their order arrives, the products will be at the level of quality they were expecting.

In this unit, we'll look at the skills required to visually assess products or materials against the standards that have been set for them. We'll also discuss ways of preparing the area for a visual assessment activity, and the process of moving the products on to their next stage of manufacture or handling.



A timber grader in a sawmill inspects a board for grade, before pulling it off the sorting table and putting it in the correct stack.

Working through this unit

There are three sections in the unit *Assessing materials*:

1. Preparing the area
2. Making the assessment
3. Distributing the material

Each section begins with *Your job*, which introduces you to the topics covered. There are also several lesson pages in each section, and a task at the end. Your trainer may ask you to submit the completed learning activities and tasks as part of your assessment evidence for the unit.

Section 1: Preparing the area

Your job

The process of visually assessing materials needs to be properly planned and prepared, so that the job can be done in a methodical way. As is the case in anything you do, a slapdash approach will produce a slapdash result, and your customers will soon get the message that quality isn't a high priority for you.

On the other hand, if you carefully maintain the standards that have been set for the products you are supplying, your customers will develop a sense of trust in your reliability, and will feel confident that when they order a particular product, the delivery will match what they were expecting.

The first step in ensuring that the assessment process will produce accurate and consistent results is to be properly set up for the activity. In this section, we'll look at the preparations you need to make before you start the assessment activity itself.



A leading hand talks to his manager about improvements he wants to make to the quality control procedures on his production line.

He knows that that the manager takes quality control very seriously, and that encourages her staff to look for new ways to improve existing systems

Here's your job



1. Have a look at the Task for this section to preview the questions you'll need to answer at the end.
2. Work through each of the lessons for more detailed information on the concepts covered
3. Complete the learning activity at the end of each lesson. Some of the learning activities are also available as interactive exercises on the accompanying CD.
4. Complete the Task. You will find a hard-copy template in your Workbook and an electronic version on the accompanying CD. If you use the electronic version you can enter your answers on-screen and then print out the finished document, ready for sending to your trainer.

Things you need to consider

There are lots of things you need to consider when you're preparing to visually assess the grade or quality of the products you're handling.

Here is a checklist of the most important considerations:

Safety: Are you familiar with the safe operating procedures for the equipment you will be using? Are you wearing the appropriate personal protective equipment?

Specifications: Do you understand the relevant Australian Standard or customer specification that applies to the material you will be assessing?

Equipment: Have you got all the required equipment on hand? Is it in good working order and correctly calibrated?

Lighting: Is the lighting adequate for the task you are undertaking?

Space: Is there sufficient space for the work you will be doing?

Layout: Does the layout of the area allow for the smooth flow of materials, including forklift movements, trolley positions and storage locations?

Documentation: Are all of the required forms or documents on hand to record the necessary information as you carry out the visual assessment?

Learning activity.



Choose a particular product or material that you are required to visually assess as part of your job. Depending on your workplace, it could be sawlogs, sawn timber, mouldings, components, particle board sheets, or any other item that needs to be checked for quality.

Draw a simple floor plan of the area in the workplace where you carry out this work. Indicate where the required equipment and facilities go. Use arrows to show the flow of products or materials through your work area.

The floor plan you produce will help you to complete the Task for this section.



Visual assessment requires concentration. If you make sure that everything is in place before you start, you'll be able to focus on the job without being distracted by unnecessary problems or hiccups in the system.

Task 1: Preparing the area

This task follows on from the learning activity for: 'Things you need to consider', where you have drawn up a floor plan of the area in which visual assessments take place.

Using the floor plan as a guide, list all of the resources and any other requirements you would need to carry out the visual assessment job you have chosen.

Headings:

Visual assessment activity

Job title of person carrying the activity

Description of activity

Personal protective equipment needed

Other equipment needed

Space or area required

Lighting required

Standards or specifications required

Other documentation required

You will find a template for this Task in your Workbook and an electronic version on the accompanying CD.

Section 2: Making the assessment

Your job

The specifications you assess your materials against will depend on the products you're handling and the clients you're supplying. You may be following Australian Standards, industry standards, your enterprise's standards, or even your customer's own specifications.

In this section, you will need to undertake the actual visual assessment process in your workplace under the guidance of your supervisor or trainer. Once you have practiced your assessment skills on-the-job and are ready to be put to the test, your trainer will ask you to assess a certain quantity to check that you are making consistent judgements and accurate decisions.



Sawmills, manufacturing plants and other production-based businesses have mechanised equipment that is designed to make the visual assessment process as efficient as possible.

Here's your job



1. Have a look at the Task for this section to preview the questions you'll need to answer at the end.
2. Work through each of the lessons for more detailed information on the concepts covered, and complete the learning activity at the end of each topic.
3. Complete the learning activity at the end of each lesson. Some of the learning activities are also available as interactive exercises on the accompanying CD.
4. Complete the Task. You will find a hard-copy template in your Workbook and an electronic version on the accompanying CD. If you use the electronic version you can enter your answers on-screen and then print out the finished document, ready for sending to your trainer.

Cross-checking with the standards

Whichever standard applies to the material you are assessing, it's important that you are familiar with it. If the standard you're using is very detailed or complicated, it's useful to keep a summary of the specifications close by. For example, timber graders often have a large chart hanging on the wall, with drawings of the different defects they need to look out for and the limitations marked for each one.

Even people who are not involved in the initial visual assessment on the production line need to have an understanding of the specifications that apply to that product, so they can double check that it still meets the standard when their turn comes to handle it.

There are various reasons why the product may not meet the required grade when it reaches the manufacturer, or retailer, or end user. Reasons might include:

- the product was graded or marked incorrectly by the original producer
- some characteristics of the product have since changed due to moisture content changes, such as surface checks, end splits, board distortion, or excessive shrinkage.
- the product has been damaged during transportation or handling.

If each person who handles a product is able to check that it still complies with the specifications set for it, then there is much less chance that the item will end up causing trouble later on, when it is finally installed in the finished structure or manufactured item.

Example of a ready reckoner

On the following page is an example of a simple ready reckoner that a yard person in a retail timber yard might use to check that the timber they're handling is 'in grade'.

Although the official grading will have already been carried out at the sawmill that produced the timber, the retail yard staff still need to ensure that the timber complies with the grade requirements when they re-sell it to builders and other end users. This particularly applies to characteristics relating to its 'usability' that might have changed over time, such as bow, spring, twist, and end splits.

The ready reckoner lists the things that a retail yard person needs to look out for when they're handling structural softwoods, such as radiata pine. This list is based on AS/NZS 1748 (Australian/New Zealand Standard), and shows some of the 'usability' grading limitations that apply to mechanically graded softwoods.



A quality control officer measures the width of a milled board with his Vernier calipers, and checks that it is within the tolerances shown in the specifications.

Yard person's ready reckoner

Ready reckoner Machine stress graded softwoods (from AS/NZS 1748:2006)
Note: This is a summary only of some of the visual over-rides that apply to kiln dried, planer gauged or dressed, machine stress graded softwoods, such as radiata pine and slash pine, graded under AS/NZS1748:2006. For a full description of all grade requirements, please consult the Standard.

Characteristic	Limitation
End splits	Maximum individual length: ½ width of piece; Aggregate length at each end: 2 times the width or 200 mm in total, whichever is the lesser
Wart and wane	Maximum 1/2 face and 1/3 edge

Length (m)	Bow (mm)	Spring (nom. width mm)		Twist (nom. width mm)			
		Up to 125	150 & up	Up to 100	101-150	151-200	201-300
Up to 2.4	20	6	6	5	7	10	15
3.0	30	9	9	7	10	14	20
3.6	40	18	14	8	13	18	25
4.2	50	22	18	9	15	21	29
4.8	60	29	24	10	16	23	33
5.4	65	36	30	11	18	26	37
6.0 & over	70	44	36	12	20	28	40

Learning activity



- What standards do you use when you carry out visual assessments at work?
- Do you have a wall chart hanging up in your work area?
- Do you have a specifications card that you can keep in your pocket?
- If you don't use some sort of ready reckoner, what process do you use to check the products or materials against the standards that govern their quality?

Compare your own circumstances with those of other learners in your group.

If you don't have a list of specifications set out in a way that can be used as a ready reckoner, see if you can make up your own checklist. Ask your supervisor for details on the standards that apply to the materials you need to visually assess. Write down the specifications that are most relevant to the assessment process you need to undertake. You may wish to make up a wall chart or laminated card. Be sure to check with your supervisor that the details are correct before you start using it.

Task 2: Making the assessment

For this practical exercise, you will need a set of specifications to work with as you visually assess the products or materials you handle in your job. Depending on what the materials are, you may be using Australian Standards or industry standards, or if it is a proprietary product, there might be a manufacturer's standard that applies. In some cases, a customer defines their own standard, particularly if they are buying components in large volumes for use in their own manufactured products.

Your supervisor or trainer will give you the standard that applies to the material you'll be assessing. Or if you have produced your own ready reckoner for the learning exercise in this section, you may wish to use it for this Task.

You will find a template for this Task in your Workbook and an electronic version on the accompanying CD.

Section 3: Distributing the material

Your job

Visual assessment of products is all about making sure the standards are consistently met, but there's more to it than just being able to grade products accurately. To be profitable, the process also needs to be efficient.

In this section, we'll look at the system for moving the graded materials to the next stage of production, or the area where they will be held in storage, after they have been visually assessed. We'll also look at the process of rejecting down-graded materials, and either returning them to be re-worked or disposing of them as waste.



Here's your job



1. Have a look at the Task for this section to preview the questions you'll need to answer at the end.
2. Work through each of the lessons for more detailed information on the concepts covered, and complete the learning activity at the end of each topic.
3. Complete the learning activity at the end of each lesson. Some of the learning activities are also available as interactive exercises on the accompanying CD.
4. Complete the Task. You will find a hard-copy template in your Workbook and an electronic version on the accompanying CD. If you use the electronic version you can enter your answers on-screen and then print out the finished document, ready for sending to your trainer.

Working productively

Productivity depends on an efficient flow of materials. This means that the materials must flow smoothly between the different sections of the workplace, and the final product must arrive at the despatch point in accordance with the production schedule.

It's not easy to design a system of operation that allows the workflow to proceed smoothly and efficiently, without people getting in each others' way or causing bottlenecks when one person or area of operation falls behind the others. However, the better the design, the more effective the system will be at dealing with typical day-to-day problems while still maintaining an even production flow and steady output.



A supervisor instructs his forklift driver on the next lot of materials that need to be brought into the production area.

Learning activity



Take the floor plan that you drew up for the Section 1 learning exercise, and add the next stage that the product or material goes to after it leaves your hands. Use arrows to indicate the direction of flow of the materials.

The floor plan you produce will help you to complete the Task for this section.

Task 3: Distributing the material

The objective of this exercise is to look at the process for sending the materials you have assessed on to the next stage of production or handling, and to see whether there are any improvements that could be made to the efficiency of the system.

1. What equipment is used to take materials to and from the visual assessment area?
2. What is the process for rejecting down-graded materials?
3. Where are the materials stored after they have been assessed?
4. Are there any changes you would make to this system that might help to improve its efficiency?

You will find a template for this Task in your Workbook and an electronic version on the accompanying CD.

Glossary

Term	Definition
Australian Standard	An official document that sets out the requirements for meeting an agreed set of specifications.
Grading	The process of sorting products or materials into different categories, based on an agreed 'standard'
Standard	The specifications set for a product; also used as a short form for 'Australian Standard'.
Visual assessment	The process of evaluating a product by eye, and deciding on its grade or quality.