Workspace Training

Quality and product care

Learner Guide

Supporting FPICOR3202B:

Conduct quality and product care procedures

Version: January 2012

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 ***Quality and product care*** e-learning unit developed by McElvenny Ware for the Australian Flexible Learning Framework in 2009.

The Quality and product care 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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Introduction

Quality is a measure of excellence. For a company that supplies products or services, it is the level to which these items meet industry standards and the expectations of customers. A 'good quality' product is one that will provide the reliability and performance that the customer expects from it.

Most of the products sold in the forest and forest products industry need to be processed or manufactured in some way. This means that the quality of the final item not only depends on the raw materials it's made of, but also the care taken in manufacturing it, storing it in the warehouse and delivering it to the customer.

In this unit, we will look at the process of maintaining quality control, the costs involved in monitoring and maintaining quality, and how to deal with quality problems.

Like everyone else in the business, the forklift driver plays an important role in ensuring that all products are handled carefully and protected from damage when they are being moved around.

Working through this unit

There are two sections in the unit *Quality and product care:*

1. Your responsibilities for quality
2. The cost of maintaining quality

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: Your responsibilities for quality

Your job

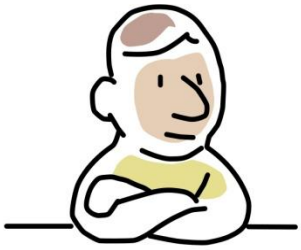
When a customer says they have just bought a *good quality* product, they really have a lot of people to thank.

In the case of a manufactured timber product, for instance, the process of monitoring its quality starts with the harvester, then goes to the sawmiller, the wholesaler, the manufacturer, and finally ends up with the retailer. That's a lot of people before it finally reaches the customer.

This is why everyone involved in the process needs to be concerned about quality. At any point in the supply chain, the quality of a product could be seriously affected and even destroyed if someone doesn't do their job properly and keep a watchful eye on their own part of the process.

A yardperson stacks each piece of timber carefully in the rack, so that the material stays straight and in good condition while it's being stored.

Here's your job



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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.
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Day to day responsibilities

Because everyone in the supply chain is responsible for some aspect of quality, it is important that each person's role is clearly defined and understood, and that everyone knows exactly what their responsibilities are, and how their job fits in with those around them.

The quality control responsibilities of a job are generally written up in the job description. Remember that quality control doesn't just relate to the products that the company produces.

For example, for a salesperson, quality control might include following up on customer enquiries within a certain time. And for an administrative clerk it might include double-checking the calculations on invoices.

The quality of every product or service provided by a business needs to be monitored and assessed at each stage of its production or delivery. So it stands to reason that each person involved in this chain of events plays a role in the process of quality control.

This machinist is profiling the ends of truss webs. He will check the finished profile of each piece to make sure it meets the standard before putting it into the stack of completed web components.

Learning activity

1. The 'case study' person on the accompanying CD is Tim – a forklift driver and orderperson. You can see Tim's job description on the next page. How similar are his responsibilities to your own job description?

   If you're not sure what your own duties are for maintaining quality, ask your supervisor to give you more details.

2. Talk to your workmates to find out what their responsibilities for quality are. If your work is part of a production process, speak to the people who work on the products before and after you receive them. Find out what they look for when they're monitoring the quality of the items at their own stage of the process.

3. Your trainer may ask you to compare your responsibilities for quality with other learners. This will let you share with each other the similarities and differences between your workplaces and jobs in terms of quality and product care.

Tim's job description – Forklift driver / Orderperson

(See the case study for *Section 1: Your responsibilities for quality* on the accompanying CD.

Primary Job

To load and unload delivery trucks, check delivery dockets, make up customer orders and store timber products in correct storage areas. Reports to Yard Manager.

Responsibilities

Daily Work:

- Unload incoming trucks and check order against delivery docket
- Load outgoing trucks with customer orders and check delivery dockets
- Check quality of incoming and outgoing materials and report any non-compliances to supervisor
- Transfer goods to designated storage area
- Maintain storage areas in a safe and tidy manner
- Perform other forklift operations as requested
- Make up customer orders and check grade of materials to ensure compliance with standards

OHS:

- Work in a manner that does not endanger yourself or others
- Wear personal protective equipment supplied
- Follow safe operating procedures at all times
- Use equipment in a safe and proper manner
- Report accidents / incidents to your supervisor
- Report safety hazards to your supervisor and via the safety hazard log
- Keep your work area clean and tidy

Other Work:

- Work in other areas where trained or accredited as requested

Required Tools / Equipment

- Forklift
- Wet weather gear
- Sunhat
- PPE

Standards in the workplace

Standards are documents that set out the specifications and procedures required to ensure that a product or service is *fit for its purpose*, and performs in the way it was intended.

That is, although quality is a measure of excellence, this doesn't mean that for a product to be of *good quality* it has to be the best there is. But it does have to meet the standards that are expected of it.

For example, the timber bearers used under the floor in a building would need to have much higher strength properties than the timber skirting boards above the floor. On the other hand, the skirting boards would need better appearance characteristics than the bearers, because they are on display.

A supervisor makes sure that his worker has selected a pack with the correct grade and specifications for the job to be undertaken.

In each case, if the product is 'fit for the purpose' for which it is intended, it can be considered to meet the requirements for being a 'quality' product, according to the standards that have been set for it.

Types of standards

There are different types of standards, depending on the product or service being described.

Some companies develop their own standards, and call them by trademarked names. For example, if you ordered a parcel of flooring that was marked 'Australiana grade', you would expect it to comply with the Australiana Grade Standard set by that company. This type of standard is called an enterprise standard, because it only applies to the enterprise that developed it.

Other standards are developed by recognised bodies that consult widely with industry people and end users, and have their standards officially adopted by government agencies, industry associations and other formal groups in the community.

The two organisations most prominent in Australia are:

- **Standards Australia**, which produces the Australian Standards (prefixed with 'AS')
- **International Organization for Standardization**, which produces International Standards (prefixed with 'ISO').

Most of the standards used in the forest and forest products industry are produced by Standards Australia. Many of these Standards are referenced in official documents, such as building codes, supply contracts and WorkCover regulations. In these cases they become legally binding documents, and complying with them is essential to doing a job properly.

Learning activity

Below is a list of Australian Standards commonly used in the timber industry. You can see the full range of 'AS' and 'ISO' standards by going to the organisations' own websites, at:

- Standards Australia: **http://www.standards.org.au**
- International Organization for Standardization: **http://www.iso.org**

Try to identify all the standards on this list that apply to your own work.

Standards commonly used in the Timber Industry

Timber grading

AS 1613 Timber - Colours for marking F-grades

AS/NZS 1748 Timber - Mechanically stress-graded for structural purposes

AS 1810 Timber - Seasoned cypress pine - Milled products

AS 2082 Timber - Hardwood - Visually stress-graded for structural purposes

AS 2796 Timber - Hardwood - Sawn and milled products

AS 2858 Timber - Softwood - Visually graded for structural purposes

AS 3519 Timber - Machine proof grading

AS 3818 Timber - Heavy structural products - Visually graded

AS/NZS 4063 Timber - Stress-graded - In-grade strength and stiffness evaluation

AS 4785 Timber - Softwood - Sawn and milled products

Manufactured timber products

AS/NZS 1328 Glued laminated structural timber

AS 1577 Scaffold planks

AS 1729 Timber - Handles for tools

AS 2209 Timber - Poles for overhead lines

AS/NZS 4357 Structural laminated veneer lumber

AS 4446 Manufacture of nailplate-joined timber products

AS 5067 Timber - Non-structural glued laminated

AS 5068 Timber - Finger joints in structural products

Preservative treatment

AS 1604 Specification for preservative treatment

AS/NZS 1605 Methods for sampling and analysing timber preservatives and preservative-treated timber

AS/NZS 2843 Timber preservation plants

AS 5605 Guide to the safe use of preservative-treated timber

Forestry

AS 4708 The Australian Forestry Standard

Testing methods

AS/NZS 1080 Timber - Methods of test

AS/NZS 4490 Timber - Stress-graded - Procedures for monitoring structural properties

AS/NZS 2097 Methods for sampling veneer and plywood

AS/NZS 2098 Methods of test for veneer and plywood

AS/NZS 4266 Reconstituted wood-based panels - Methods of test

Classification

AS/NZS 1148 Timber - Nomenclature

AS/NZS 2878 Timber - Classification into strength groups

AS/NZS 4491 Timber - Glossary of terms in timber related Standards

AS 5604 Timber - Natural durability ratings

Wood panels

AS/NZS 4787 Timber - Assessment of drying quality panel products

AS/NZS 1859 Reconstituted wood-based panels

AS/NZS 1860 Particleboard flooring

AS/NZS 2269 Plywood – Structural

AS/NZS 2270 Plywood and blockboard for interior use

AS/NZS 2271 Plywood and blockboard for exterior use

AS/NZS 2272 Plywood – Marine

AS 6669-2007 Plywood – Formwork

Machinery

AS 1473 Guarding and safe use of woodworking machinery

Quality and environmental management systems

AS/NZS ISO 9001 Quality management systems

AS/NZS ISO 14001 Environmental management systems

AS 3904 Quality management and quality system elements – Guidelines for processed materials

Attitudes to quality

Everyone involved in the production, storage, transportation and sale of a product plays a role in getting the goods to the customer at the level of quality that's required.

This means that there must be an attitude of carefulness and quality consciousness right through the operation, starting at the top with the manager of each operation, and spreading throughout all aspects of the business, so that everyone is working in co-operation with each other.

Sometimes people feel less inclined to set their own work standards high, because they see those around them taking shortcuts and getting away with it. When people start to think: '*no-one else seems to care*', the mood can affect everyone involved in the operation, making people less interested in the quality of their work.

Two yard workers discuss the best place to store a completed order while they wait for the customer to come and pick it up.

But there are many ways to show that you believe quality is important to the way you work. Below are some examples of *quality attitudes* that will not only improve your own level of performance, but will also tend to rub off on the people around you:

- Consistently working to high standards and taking pride in your work
- Paying attention to detail and getting things right first time
- Correcting any substandard work
- Encouraging others to maintain quality, and setting a good example
- Suggesting improvements to the way work is done.

Learning activity

Think of an example where a poor attitude at work contributed to a sub-standard product being supplied to a customer, resulting in a complaint. You may have been involved in the harvesting of the timber, milling or manufacture of the product, or the sale at a merchandising outlet.

- What were the circumstances?
- How could the problem have been avoided?
- What control measures could you put in place to stop it from happening again?

Task 1: Your responsibilities for quality

1. Day-to-day responsibilities

What are your day-to-day responsibilities for maintaining quality and product care in your work?

Include your job title and the type of work you do in your answer.

Ask your supervisor for help with this question if you're not sure what your daily responsibilities are. You could also look at your 'job description' to see whether there are any specific responsibilities listed for your position.

2. Standards in the workplace

What standards apply to the work you are involved in?

These might include Australian Standards, industry codes of practice, enterprise standards, or customer specifications.

3. Attitudes to quality

Give an example of a problem that might occur if someone in your position had a poor attitude to quality. What might the results be of this problem? How would you stop this situation from occurring?

You can either make up a typical example, or describe a real situation that has occurred at your workplace.

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

Section 2: The cost of maintaining quality

Your job

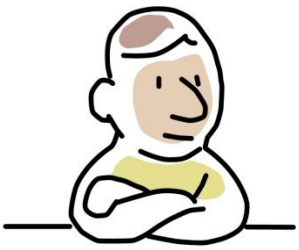
Making sure that the quality of your products is consistent requires a solid investment in time, money and resources.

But the cost of not implementing sound quality control measures can be many times greater, and may involve:

- credit claims and returns
- damage to a company's reputation
- loss of business
- in serious cases, court action.

A sawyer chooses his cutting pattern based on the characteristics of the log. His aim is to get the best recovery of timber at the highest grade possible.

Here's your job



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The cost of good quality

The cost of maintaining a consistently high quality in the things your company produces or resells can be divided into two categories.

A supervisor oversees his production worker checking the tolerances on a special order of cut-to-length components.

Prevention costs relate to planning and implementing quality control measures before the product is manufactured or sold. They include:

- developing product specifications
- writing up product care procedures
- training employees
- designing quality control documents.

Evaluation costs relate to the actual inspection and measurement of products during their manufacture or sale. These costs include:

- checking the quality of incoming materials
- checking the quality of products at each stage of their processing
- maintaining test equipment
- collecting data and writing reports.

Learning activity

Let's take an example of a workplace that has a quality control system in place and is monitoring the costs involved. We'll say it's a timber frame and truss manufacturer called 'Premium Frames and Trusses'.

But before we look at specific examples of quality costs incurred by the company, we need to discuss the costs related to poor quality inputs and outputs.

Go to the next lesson – *The cost of poor quality* – and read through the description of these types of costs. Then answer the questions in the Learning activity for that lesson. The questions will deal with costs relating to both good and poor quality materials, processes and workmanship.

The cost of poor quality

Like the cost of good quality, the cost of poor quality can also be divided into two categories. The category each cost falls into depends on whether the materials have been rejected by the company or by the customer.

A quality control officer removes a length of timber that has been graded incorrectly.

Internal rejects are products or materials that are rejected during the production process, before they leave the company's site. They include:

- products that are scrapped and sent to waste
- products that are downgraded, or docked back to make an acceptable grade
- work that has to be redone.

End-use rejects are products or materials rejected by the customer after they have been delivered to site, or put into use. These costs can be very high, and include:

- credit claims
- call-backs to installation jobs
- loss of future orders
- damage to reputation
- litigation.

Learning activity

Premium Frames and Trusses takes pride in the quality of the timber frames and trusses it produces for project home builders and owner builders. But the company knows that the only way it can maintain its sound reputation in the marketplace is for everyone involved in its operations to take quality control very seriously.

Sometimes there are problems in the quality of incoming stock, or in the manufacturing process. And every now and then mistakes get made with orders and the customer is the first one to pick them up.

On the next page are four situations that occur on one day at the frame and truss plant. As you look at each situation, think about the costs incurred by the company. Then tick the relevant box to identify the type of cost for each situation.

Situation 1

Shaun receives a cutting list for a new job. But before he starts cutting, he double checks the order against the timber he has selected to make sure:

- the size and grade are correct
- the length is suitable for the different lengths he needs to cut.

What type of cost is this to the company in terms of its quality system?

☐ Prevention cost ☐ Evaluation cost ☐ Internal reject cost ☐ End-use cost

Situation 2

Bob unloads a set of roof trusses that have been returned to the plant by the carpenters at the building site. The carpenters work under contract for the client, a project home builder.

It turns out that the trusses were manufactured to the wrong specifications, because the person who wrote up the production order at Premium made a mistake.

What type of cost is this to the company in terms of its quality system?

☐ Prevention cost ☐ Evaluation cost ☐ Internal reject cost ☐ End-use cost

Situation 3

Lydia makes some improvements to the way production workers record the details of the materials they use in the jobs they're working on.

These improvements are designed to help pick up errors in production before the materials go through to the next stage of manufacture.

What type of cost is this to the company in terms of its quality system?

☐ Prevention cost ☐ Evaluation cost ☐ Internal reject cost ☐ End-use cost

Situation 4

Brad finds that the preservative treatment coating on a particular batch of framing material has not been applied evenly, and many of the pieces don't meet the level required.

He decides to play it safe and put the whole pack back through the treatment process.

What type of cost is this to the company in terms of its quality system?

☐ Prevention cost ☐ Evaluation cost ☐ Internal reject cost ☐ End-use cost

Dealing with problems

There are many things that can go wrong in the manufacture and supply of timber products.

An orderperson checks the quality of each piece of timber as he puts it in the rack.

Problems might include:

- poor quality incoming stock, or materials stamped with the wrong grade
- machine set-up problems, resulting in undersized or oversized materials
- damage to stock due to the weather or while in storage
- damage due to rough handling during transportation
- customer order mistakes, such as noting the wrong species or size
- invoicing mistakes, such as using the wrong price or tally
- delivery mistakes, such as loading the wrong pack onto a truck.

Once a problem has been identified, it needs to be traced back to its source so that the cause can be dealt with. Sometimes the cause is obvious, and can be fixed quickly. At other times, the reason for ongoing problems can be more deep-seated, and require an overhaul of work practices or a new system of documentation.

Reasons for problems

Most quality problems fall into one of three categories: *people, work conditions, and practices.* Here's a list of some of the reasons why they might occur:

People

- inadequate skill
- lack of training
- poor attitude
- incorrect use of machinery.

Work conditions

- out-of-date equipment and machinery
- lack of maintenance to machinery
- inadequate lighting
- poor yard layout.

Practices

- specifications or job descriptions not clearly defined
- work procedures not clearly defined
- work procedures not appropriate for the job.

Learning activity

Have a think about some of the quality problems that you need to deal with in your day-to-day work. What are their causes? How would you solve them?

Task 2: The cost of maintaining quality

Make a list of the most common quality problems that can occur in your day-to-day job. It may help if you walk around your work area and look at the areas where problems tend to occur. You could also ask your work mates or supervisor about any quality issues that they need to watch out for.

Beside each problem, note its cause and your proposed solution on how to overcome it.

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.
Continuous improvement	The approach of gradually improving processes and methods of operation to work towards a benchmark, or 'best practice'.
Product care	Looking after the products manufactured or handled in the workplace to avoid damage or loss of quality.
Quality	In general terms: a measure of excellence. For products: fitness for the purpose for which the product is intended.
Quality control	The process of maintaining quality in the workplace by monitoring and assessing the products or services against a set of benchmarks.