TOOLBOX
INFORMATION
SESSION

USING PORTABLE LADDERS

INTRODUCTION

Portable ladders are a simple and commonly used piece of equipment in industry. The main types of portable ladders used are the:

single ladder;

extension ladder; and

step ladder.

These can be made from timber, aluminium alloy or fibreglass.

Accidents involving the use of ladders usually occur because:

ladders are not checked before they are used;

the wrong type of ladder is used for the job;

ladders are not positioned and secured correctly; and

ladders are not used properly.

CHECKING TIMBER LADDERS

The first stage in preventing an accident is to inspect the ladder before you use it.

On all types of timber ladders you should check the general condition of the timber for these types of faults:

cracking or shearing across the timber grain;

splits along the grain;

moisture damage;

any burn marks or charring; and

termite damage.

CHECKING METAL LADDERS

The main faults to check for with metal ladders are:

twisted or deformed ladder parts;

heat or chemical damage, such as corrosion of aluminium due to contact with caustic soda;

sharp edges or burrs; and

loose or missing rivets and screws.

CHECKING A SINGLE LADDER

A single ladder is the simplest of all ladders but even though they are very basic in design, there are some important checks that you should carry out before using one.

Check the **ladder stiles** for:

twisting or bowing;

spreading - the distance between the inside faces of the stiles should be the same along the entire length of the ladder; and

the condition of the bottom face of the stiles - they should be fitted with an anti-slip surface or anti-slip feet.

Check the **ladder rungs** for:

side to side movement between the stiles; and

rotation - the rungs should sit tight against the stiles and should not turn.

Ladder rungs should be evenly spaced along the ladder at 300 mm intervals.

Single ladders must be fitted with steel tie rods below the top and bottom rungs, and below every sixth rung. Tie rods are either riveted at each end, or fitted with a nut at each end. They are designed to tension the two stiles and keep the stiles and rungs “locked” together.

Check and make sure the **tie rods** are not:

missing;

distorted; or

loose.

Loose tie rods will allow the stiles to separate and cause the rungs to work loose, creating an unsafe ladder.

CHECKING AN EXTENSION LADDER

Extension ladders are basically the same as single ladders. Stiles, rungs and tie rods must be checked but there are some extra checks that you have to carry out with this type of ladder.

Extension ladders with a working length greater than 4.3 m must be fitted with a single hauling rope to extend the upper section of the ladder.
A ladder with a working length greater than 10.4 metres must be fitted with two hauling ropes. Haul ropes must be at least 8 mm thick.

Check the **hauling ropes** for:

fraying;

cuts; and make sure

the haul rope pulleys are lubricated and rotate freely.

The most important part of the extension ladder is the clutch or latching device which is used to lock the upper section of the ladder in place.

Check the **clutch** and make sure it:

locks into position; and

positions the upper and lower sections so that in any working position the overlap forms a double rung.

Extension ladders are often fitted with steel wire or fibre reinforcement along the back of the stiles. This is needed to tension the stile and reduce the amount of bowing when the ladder is extended and under load.

Check the **wire or plastic fibre reinforcing** and make sure it:

is not broken; and

is anchored through both ends of the stile.

The reinforcing should be stapled and/or glued into a groove in the stile.

CHECKING A STEP LADDER

Step ladders are constructed differently from single and extension ladders and require additional checking.

Step ladders are fitted with treads instead of rungs.

Check the **treads** and make sure they are:

housed into and across the full width of the stile; and

double screwed to each stile.

As an alternative, treads can be secured using metal brackets screwed to the stiles. Check that the brackets are secure.

The back legs provide the step ladder with the correct operating angle and stability. The back legs and the ladder are hinged at the top and joined at the bottom by cords or lockable spreader arms.

Check the **back leg section** and make sure the:

cords are even in length and free of any cuts or fraying;

cords are at least 6 mm thick;

battens and braces are firmly screwed to the back legs; and

hinges are lubricated and move freely.

Check that the cords are the correct length by spreading the ladder out fully. When fully opened out on a horizontal surface the ladder treads should be level. If the treads are not level this means the cords are either too long or too short.

If the ladder is fitted with **metal spreader arms** check the:

arms are not bent or twisted; and

they lock into place when fully spread.

Any ladder that is found to be defective must be fitted with an “Out of Service” tag and reported to the supervisor. The ladder will either be repaired or destroyed. Do not attempt to modify or repair a ladder unless you are qualified to do so.

Always check the ladder before you use it - this could save your life.

SELECTING AND POSITIONING A LADDER

You must select the correct type of ladder for the area in which it is going to be used. The two simple rules to remember are:

1. portable metal ladders or timber ladders with metal fittings must not be used where there is a risk of contact with electricity - fibreglass ladders should be used instead; and

2. portable aluminium alloy ladders must not be used where they could be exposed to corrosive chemicals such as acids or caustic soda.

How you position and secure the ladder is an important part of ladder safety. Incorrect positioning and securing can cause the ladder to become unstable causing you to slip and fall.

Make sure your ladder is positioned in the following way:

set at an angle of 75 degrees or on a 4 to 1 ratio - one metre out from the vertical for every 4 metres of supported ladder length;

the end of the ladder extends at least 1 metre past the step off point - particularly when it is leading to a platform or landing, so that you can maintain hand contact while stepping onto or off the ladder;

the stile feet are resting on a firm and level surface; and

the ladder is lashed with rope to the top support to prevent movement.

Some people try to gain extra height by:

standing the ladder on top of other objects; or

lashing two short ladders together.

This isn't just being careless but plain lazy. If the ladder isn't long enough for the job, go and find another ladder of the correct length - don't improvise.

USING A LADDER

A well maintained, properly positioned and secured ladder still has the potential for accidents if you don't use it properly.

The rules for using a ladder are very simple, and if followed, will prevent the chance of you having an accident. They are:

only one person at a time on the ladder. This will stop someone falling down onto you and prevents overloading the ladder - industrial grade ladders are only rated to about 120 kilograms;

always face the ladder when climbing up or down;

use both hands when climbing the ladder;

always maintain a minimum three point contact with the ladder - two hands and one foot, or both feet and one hand;

use all the rungs, don't double step or "race up" the ladder;

step onto and off ladders - don't jump off;

always keep your body centred between the stiles;

do not reach more than an arms length from the stile - if you can't reach, climb back down and reposition the ladder;

use a hand-rope to haul tools up to your work platform - don't try and carry them while climbing the ladder; and

if there is a risk of the ladder feet slipping, get another person to restrain the bottom of the ladder while you are using it.

Ladders are not designed to be used as a work platform but as a means of access from one height to another. Any extended period of work at heights should be carried out using a scaffold platform or an elevating work platform.

If work at height is to be carried out from a ladder you should:

use a fall restraint device which is anchored to a suitable fixed point - it should not be attached to the ladder; and

not stand any higher than 900 mm from the top so that you can maintain hand contact with the stiles.

When using a step ladder make sure that the back legs and the ladder are fully open so the ladder is at the correct angle and stable.

STORING AND MAINTAINING A LADDER

The best way to keep a ladder in good condition is to keep it clean and store it away properly when you have finished using it.

You should store ladders:

on horizontal racks so they are kept off the ground and to prevent moisture damage;

in cool, dry conditions to prevent corrosion of metal parts or rotting of the timber;

out of direct sunlight to prevent shrinkage of the timber.

Timber ladders can be treated with a clear coating material to protect the wood but they must not be painted because this will hide any defects.

Ladder rungs or treads must not be coated with any material that could create a slippery surface.

SUMMARY

The way to prevent a ladder accident is to:

check your ladder before you use it;

select the correct ladder and securely position it; and

use the ladder properly.