A Health and Safety Solution

Timber processing – Stacking timber for drying

What is the problem?

Timber stacked for air and kiln drying becoming unstable and falling over.

What are the risks?

An employee at a sawmill in Victoria was crushed by a stack of falling timber and killed instantly. The worker was laying out bearers in an air drying shed when a stack of drying timber packs collapsed on top of him.

Large quantities of timber are often fillet-stacked for air and kiln drying. Timber assembled for air drying can remain in this state for up to two years. When stacked, its moisture content is high and over the time it is in the stack for drying, its moisture content can reduce to around 20 per cent.

What is a solution to the problem?

A risk assessment will help identify a number of preventative measures to help reduce the risk of injury or death. The following are key aspects to consider in a risk assessment:

Ground stability

- The ground should be prepared carefully where the stacks are to be assembled. It should be flat with a top surface of asphalt, tarmac or concrete. This area should be well maintained with no potholes.
- The ground should be strong enough to withstand the load of the stacks and machinery.

Bearers

Bearers are used to raise the lowest pack off the ground and between stacks to create space for powered mobile plant (eg a forklift) to lift the pack.

- Bearers should be straight and identical in length in cross section. If they are rectangular, they are most stable when bearers are laid flat.
- The length of the bearer should be equal to the width of the pack. They should not protrude from the stack (creates a hazard for passing vehicles) or be shorter than the pack because they won't support it, creating instability in the stack.
- Bearers should be in good condition and strong enough to withstand the environment where the stack is assembled.

The pack

The individual packs of sawn timber are the building blocks of the stack.

- Where possible, the timber in the stacks should be uniform in length and width. The end faces should be flat so far as is reasonably practicable.
- Ensure the top of the packs are level and maintain a vertical stack.
- Dunnage (sticks used to separate individual timber boards) can be used to help form a tight pack. Like bearers, the length of the dunnage should be equal to the pack width so they do not stick out.
- The centre of gravity for each pack should be stacked directly above one another. The stack should stand alone.
- Place smaller/lighter packs on top of larger/heavier packs.

The stack

- The maximum height of any stack should not be more than four times the shortest width of the pack (ratio 4:1). If the shortest pack width is 1.2 metres, the maximum height should not exceed 4.8 metres.
- For timber stacked in the open, a ratio of 3:1 may be required to avoid potential hazards from environmental and weather conditions.

(Health and Safety Solution continued overleaf.)

- Adjust the maximum height of the stack to suit environmental and weather conditions such as ground terrain and wind conditions.
- If packs to be put in a stack are different in size and mass, the largest pack should be at the bottom and the smallest on top.

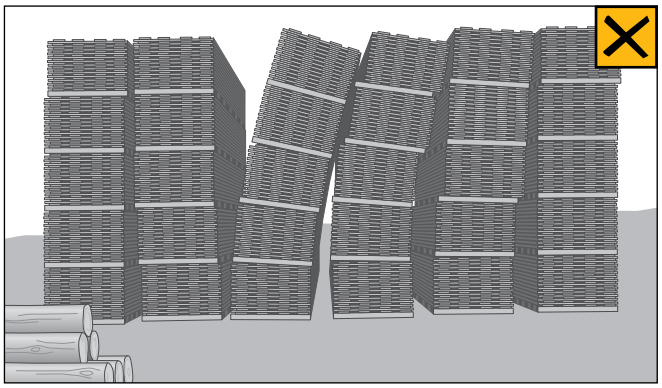
Monitoring and inspection

- Stack condition should be regularly monitored for potential hazards by suitably competent people.
- Stacks should never lean against or be supported by other stacks.
- If a stack is starting to lean, it should be assessed and where necessary restacked.
- A pack that appears out of square, 'lozenge-shaped', will affect the stability of the whole stack. It should be removed from the stack and rectified.
- Do not stack collapsed or partially collapsed packs, reassemble them.
- The stacking area should be kept clear of waste timber or unused bearers to maintain a stable base for the stacks.
- Where possible, assemble outside stacks so a small cross section is facing the normal wind direction. All stacks should be checked after high winds.

Further Information

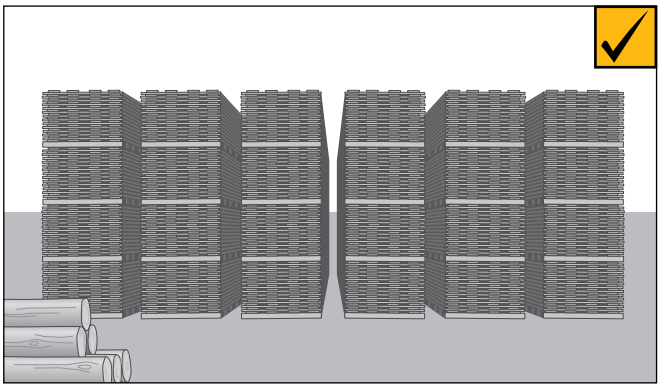
WorkSafe Advisory Service
Toll-free: 1800 136 089
Email: info@worksafe.vic.gov.au
worksafe.vic.gov.au

The problem



Unstable stacks of drying timber.

A solution



Even stacks of drying timber that are on flat ground with bearers separating the stacks.