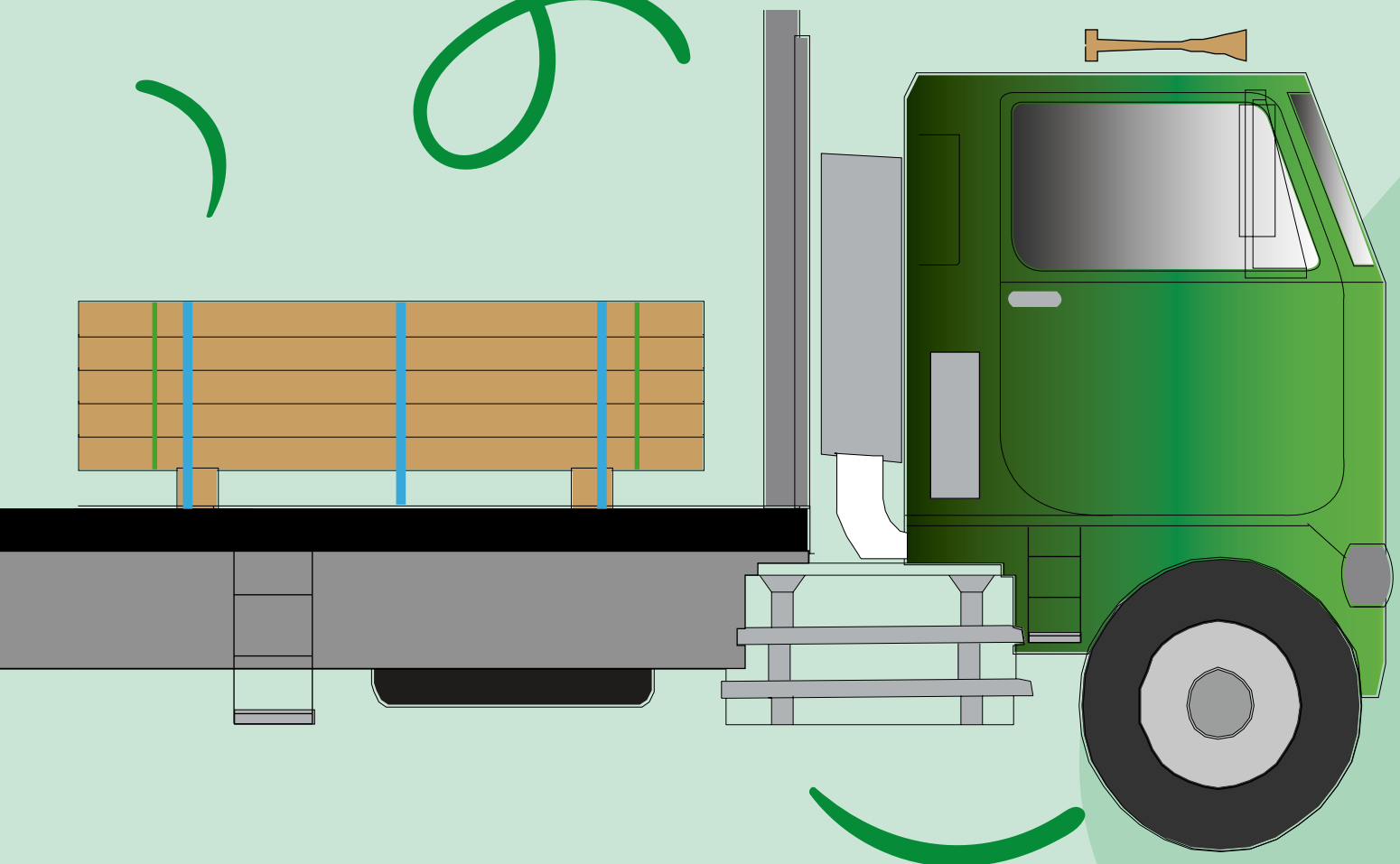
Australian Forest Products Association

GUIDE TO LOAD RESTRAINT FOR LOADERS AND UNLOADERS



ACKNOWLEDGMENTS

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Load restraint graphics used in this document are courtesy of the National Transport Commission and the National Heavy Vehicle Regulator.

DISCLAIMER

The information contained in this document is not intended to be a procedural document or an engineering standard, nevertheless it provides practical and informative examples of the general principles of loading and load restraint with direct relevance to timber products.

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INTRODUCTION

The Australian Forest Products Association (AFPA) and Forest and Wood Products Australia (FWPA) have jointly developed this a guidance document regarding loading and load restraint for the loaders and unloaders of processed timber to assist them in the safety and compliance of their transport activities.

SCOPE

This Guide is designed to enable anyone in the timber industry involved in the transport supply chain to readily identify and report / rectify inadequately restrained loads.

This Guide is not intended to be a procedural document but provides practical examples of the general principles of load restraint with direct relevance to processed timber products.

This Guide provides an overview of the Heavy Vehicle National Law obligations for “Parties in the Chain of Responsibility” with specific focus on loading and load restraint obligations.

What are the obligations related Chain of Responsibility?

In most States, the Heavy Vehicle National Law (HVNL) applies to interactions with heavy vehicles (in WA and the NT heavy vehicle law are separate state-based legislation).

The HVNL imposes a primary duty on parties in the Chain of Responsibility (CoR) to ensure the safety of their transport activities as they relate to the vehicle. The CoR party’s responsibility depends on their operational function, the nature of the risk, and their capacity to implement controls to eliminate or minimise the risk.

Parties in the CoR must ensure that no harm is caused either through their action or inaction and that their conduct does not create a situation where a driver feels pressured to breach the HVNL or road rules.

The HVNL also contains principal safety obligations related to:

- the standards heavy vehicles must meet when on roads (roadworthiness)
- the maximum permissible mass and dimensions of heavy vehicles used on roads
- the securing and restraining loads on / in heavy vehicles used on roads
- the prevention of drivers of heavy vehicles exceeding speed limits
- the prevention of drivers of heavy vehicles from driving while fatigued

Where a party in the CoR has low levels of control and influence the principal obligations mean that if a person observes something that is of concern, they should report it to the parties that can control the risks.

All parties in the CoR must ensure the safety of their behaviour and enable others in the supply chain to comply, for example, a loading site could allocate a specific area and a procedure to allow drivers and other workers to check that loads are properly restrained, or to respond to any other vehicle safety issue prior to leaving site.

DRIVERS:

Must ensure the safety of own actions and not breach the HVNL

CONSIGNOR / PACKER / LOADER / LOADING MANAGER:

Must ensure safety of own actions, not cause breaches of HVNL and on-site safety

CONSIGNEE / UNLOADERS:

Must ensure safety of own actions, not cause, or permit breaches of HVNL on-site safety

EMPLOYERS / PRIME CONTRACTORS / OPERATORS / SCHEDULERS:

Must ensure safety of own actions, not cause, or permit breaches of HVNL

WHY IS LOADING AND LOAD RESTRAINT IMPORTANT?

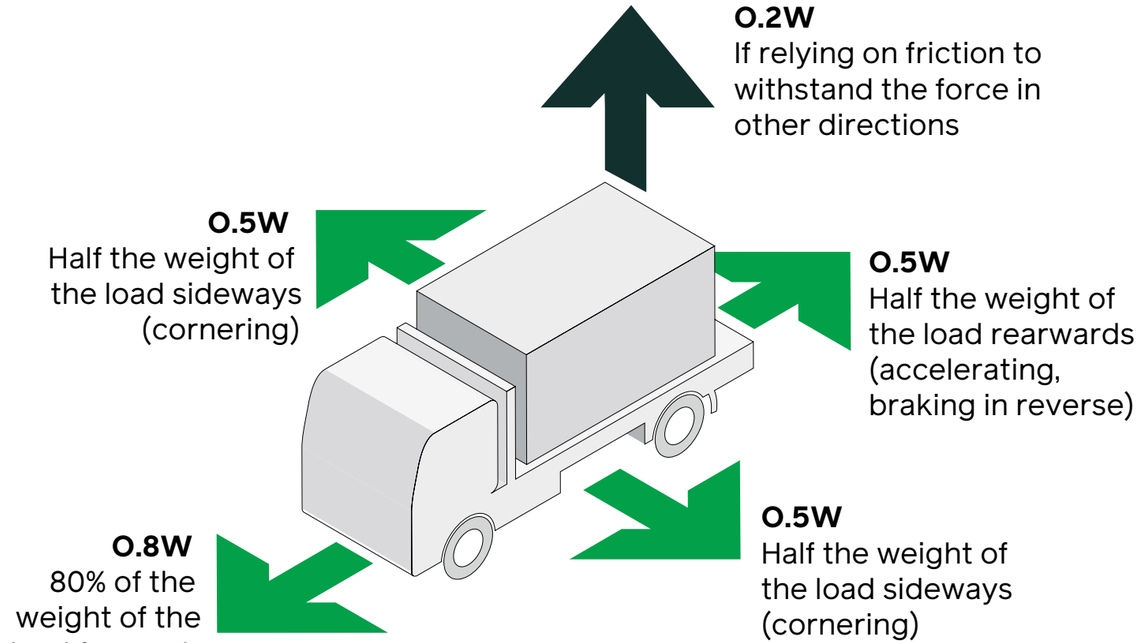
Proper loading and load restraint is important to maintain safety both at the (un)loading site and on the road network. Poorly loaded vehicles or inadequately restrained loads can cause injuries and fatalities when:

- objects fall from vehicles onto other vehicles or pedestrians
- drivers swerve to avoid falling or fallen items from vehicles
- loads crash into the vehicle's cabin during emergency braking
- vehicles rollover when loads shift during cornering

Under the HVNL a load on a heavy vehicle must:

- not be placed in a way that makes the vehicle unstable or unsafe
- be secured so it is unlikely to fall or be dislodged from the vehicle
- be restrained using an appropriate method

The law sets out Performance Standards for load restraint which are the minimum amount of force a restraint system must be able to withstand in each direction. For heavy vehicles, these forces are shown in the diagram below:

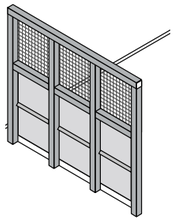


(**W** = weight of the load)

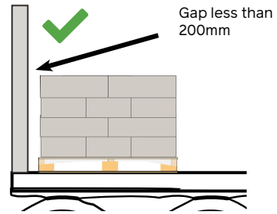
WHAT EQUIPMENT IS AVAILABLE FOR LOAD RESTRAINT?

Headboards

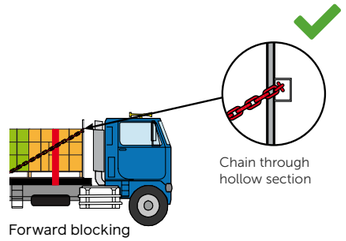
Headboards can be used for direct (blocking) restraint. Headboards can be either rated to restrain a certain amount of weight or unrated. Unrated headboards can be reinforced using chains. When blocking loads against a headboard (or other freight) the gap must not be greater than 200 mm to be effective.



Rated headboard



Gap from load to block <200 mm



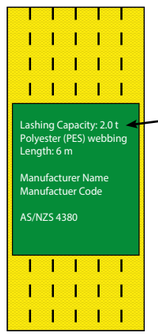
Reinforced headboard

Webbing straps

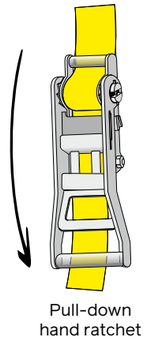
Webbing is a lightweight restraint system used throughout the transport industry to secure loads. Webbing assemblies include load-rated webbing material, together with end fittings, tensioning devices and a rating tag. The lashing capacity is displayed on each assembly that complies with the relevant Australian Standard.

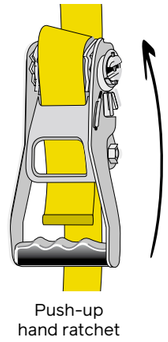
Webbing straps are tensioned using either attached clip-on sliding winches, in-line tensioners or geared winches. Hand ratchets that operate by pulling the handle downwards will normally produce much more pretension (600 kgf) than push-up ratchets and standard truck winches (300 kgf).

Straps with cuts of more than 10% of width, knotted, damaged, or significantly twisted should not be used.

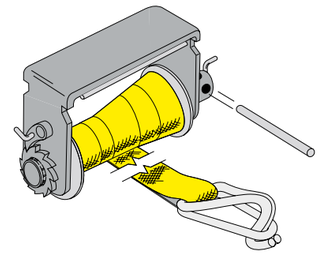


Straps are rated

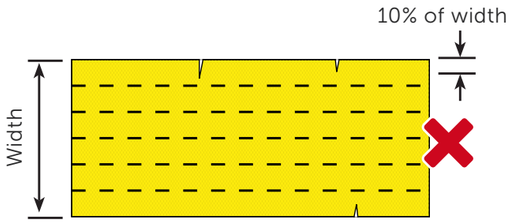


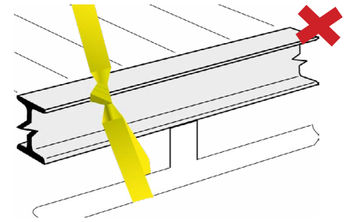


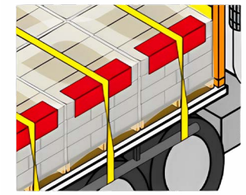
600 kg average pretension



300 kg average pretension







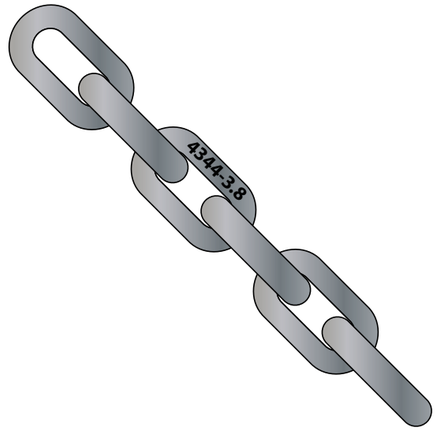
Straps with cuts of more than 10% of width, knotted, damaged, or significantly twisted should not be used.

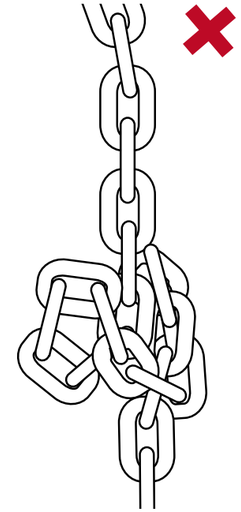
Transport chain

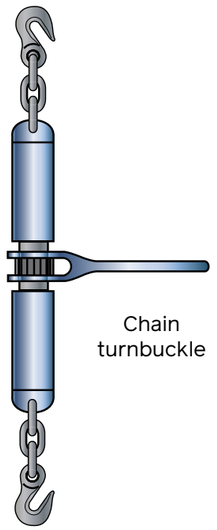
Transport chain is a highly durable lashing type with low-stretch characteristics. Use chain to restrain strong rigid loads that are not easily damaged, or where the product can be protected from contact damage.

Turnbuckles are screw tensioners operated by either a ratchet or sliding lever; they have no kickback when released and can achieve high tensions.

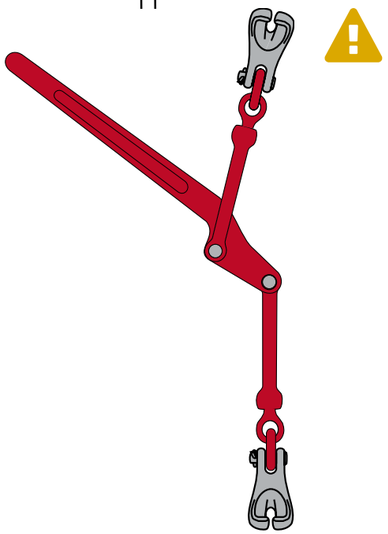
Wherever possible, use common chain tensioners (such as turnbuckles) when using chain for tie-down restraint, as they will provide higher pretensions than standard webbing tensioners.







Chain turnbuckle



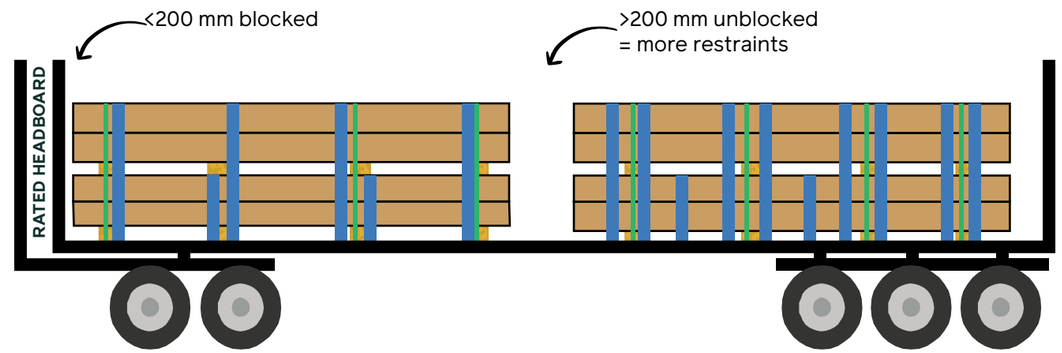
Rated chains and turnbuckles mean less straps required. Chains should not be knotted, and the use of over-centre tensioners (dogs) is strongly discouraged. Using over-centre tensioners creates a risk of the bar flicking up and hitting the worker when the tension is released. Use an alternative chain tensioner where possible.

WHAT EQUIPMENT SHOULD DRIVERS USE TO RESTRAIN THEIR LOADS OF KILN DRIED DECKING AND STRUCTURAL TIMBER?

When restraining kiln dryed decking and structural timber drivers should give consideration to the potential for damage to product when selecting restraint type for example webbing straps rather than chains.

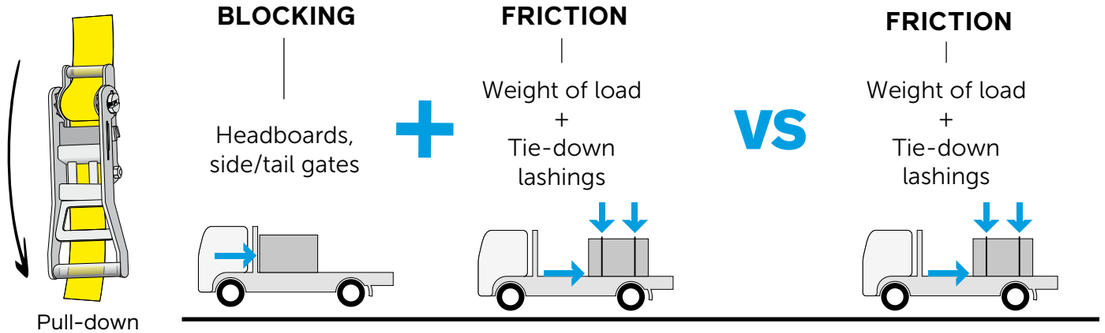
A pull down hand ratchet offers twice as much force as push up hand ratches or truck winches which mean less straps are required. When the product is blocked the number of straps required is greatly reduced as can be seen in the diagram below.

Loads need to be placed safely by the loader and restrained properly by the driver



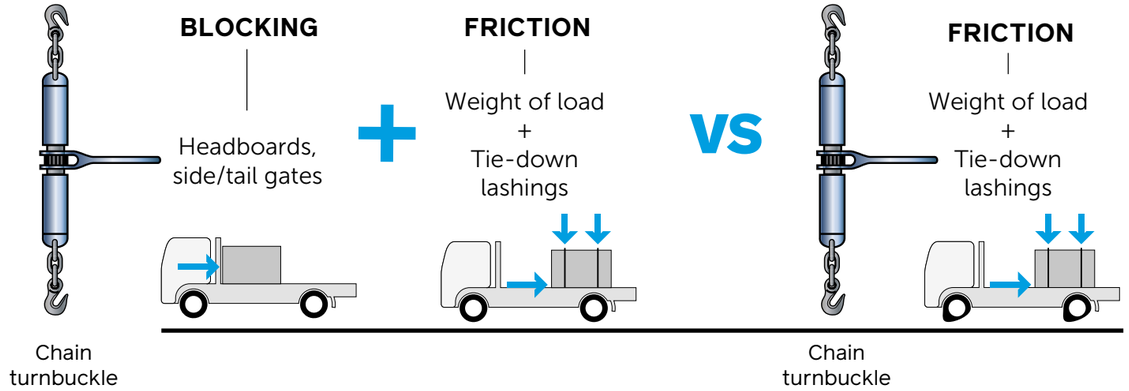
Always place rectangular dunnage on its widest face

The front part of the load above is restrained by webbing straps and using a combination of blocking and friction and requires less straps than the rear part of the load which is using friction alone

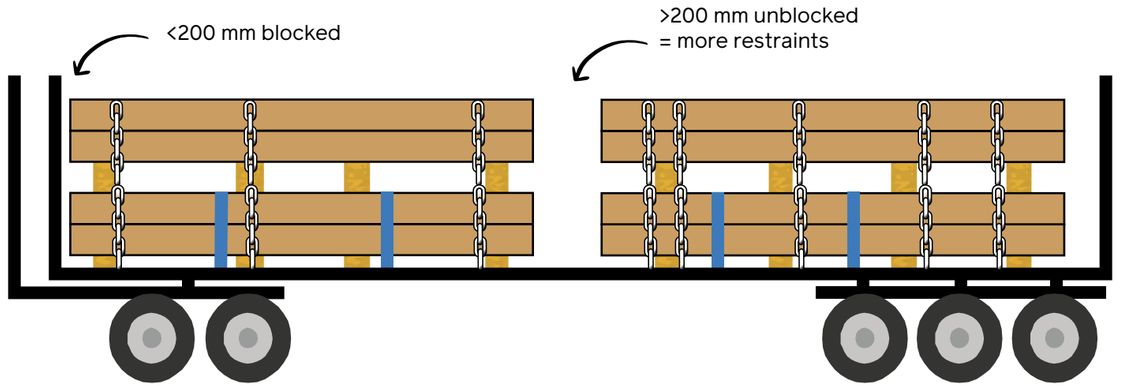


WHAT EQUIPMENT SHOULD DRIVERS USE TO RESTRAIN THEIR LOADS OF GREEN SAWN HARDWOOD?

Green sawn hardwood or softwood may either be restrained using webbing, chains and turnbuckles or a combination of either three. Turnbucks and chains can impart much more force than webbing straps and less restraints are required however there is potential to damage the timber particularly at the corners. As above, when the product is blocked the number of straps required is greatly reduced as can be seen in the diagram below.



All loads need to be placed safely and restrained properly by the driver



WHAT SHOULD LOADERS AND UNLOADERS LOOK OUT FOR?

The HVNL load performance standards require that a load on a heavy vehicle must be restrained by a load restraint system that prevents the load from moving in relation to the vehicle and at a minimum, can withstand the forces in emergency braking situations or minor collisions, for example, packs that have moved in transit that could fall from the truck etc.

Information about how to meet these standards is contained in the ***Load Restraint Guide for Heavy Vehicles.***

WHAT SHOULD A COR PARTY DO IF THEY SEE SOMETHING WRONG?

Where a party in the CoR has low levels of control and influence over the compliance with the HVNL they still have a shared responsibility to ensure safety which generally means that if they see something of concern, they should report it to the parties that can control the risks and should stop undertaking their activities related to that vehicle.

MORE INFORMATION

The Load Restraint Guide for Heavy Vehicles 2018 is now owned by the National Heavy Vehicle Regulator (NHVR) and it is available for free download or to purchase as a hard copy from the NHVR website.

https://www.nhvr.gov.au/road-access/mass-dimension-and-loading/loading