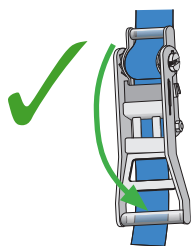


## This Guideline:

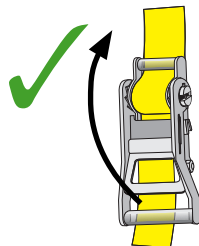
- Covers the general principles for common freight types transported by CSR.

## Load Restraint - Key Requirements:

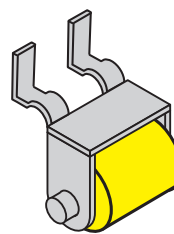
- ✓ Use a minimum of 50 mm webbing straps fully tensioned using push up ratchet for tie down over freight.
- ✓ Use a minimum of 50 mm webbing straps fully tensioned using a pull down ratchet for **cross over** lashings.
- ⚠ Stability of vehicles and product stacks can be impacted by high load heights: check stability requirements.
- ⚠ Drum winches are not suitable for tensioning of Cross over straps.
- ⚠ Any single package must have a minimum of 15 sheets.
- ✗ Do not leave items loose on the vehicle. Always secure within a box or crate.
- ✗ Do not use chains.
- ⚠ Steel pallets must have Industrial rubber or rough sawn timber material placed under them to remove the steel on steel low friction surface contact
- ⚠ Dunnage must meet the CSR standard and should be aligned vertically when placed on multiple layers
- ⚠ Throwing webbing is a manual handling risk. Use caution when applying lashings and check the other side of the trailer is clear when throwing lashings.
- ✓ Best practice for loads is to be blocked against a suitably engineered headboard/ surface or use cross over lashings.
- ✓ Use a minimum of 600 mm corner protector/ plastic angles to protect both the load and the webbing straps.
- ⚠ Ensure the protective straps must be placed no more than 300 mm off both end of the product to protect it from flapping or snapping due to wind during the transit.



Pull down ratchet



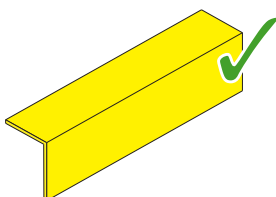
Push up ratchet



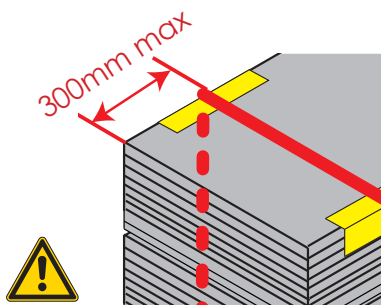
Drum winch



Chains



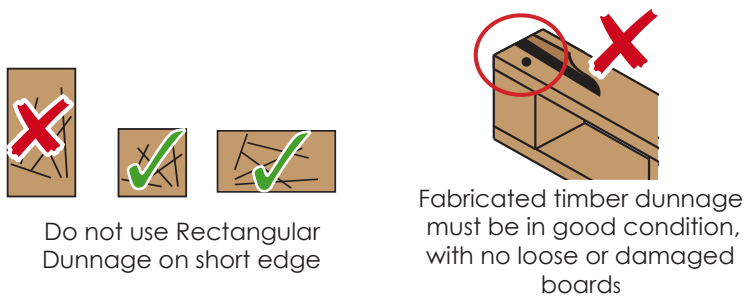
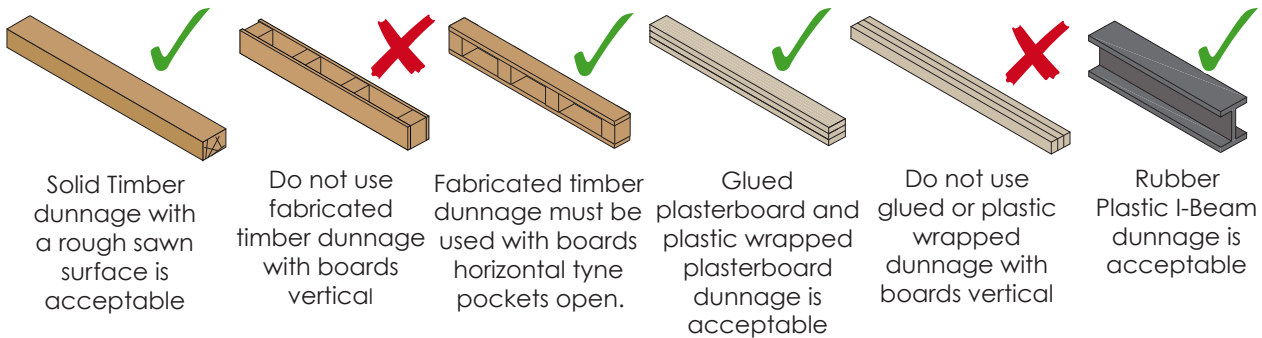
Corner Protectors



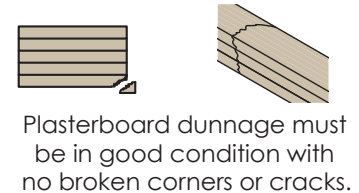
PET Tensioning Device

### Tensioner Types and application for restraint

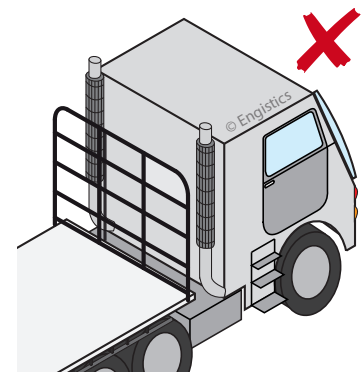
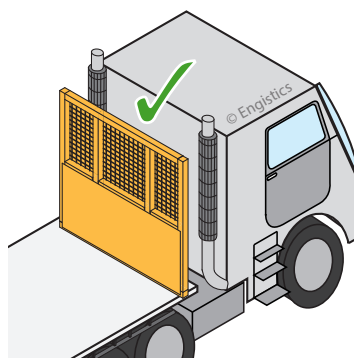
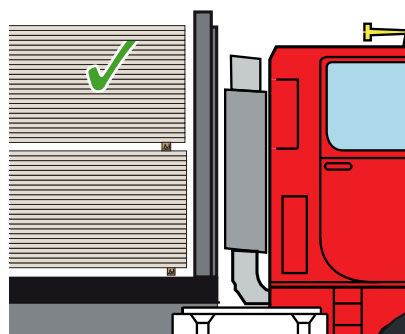
Lashing configuration		Tie Down	Cross Over Strap
Tensioner type	Drum Winch	✓	✗
	Push Up Hand Ratchet	✓	✗
	Pull Down Hand ratchet	✓	✓

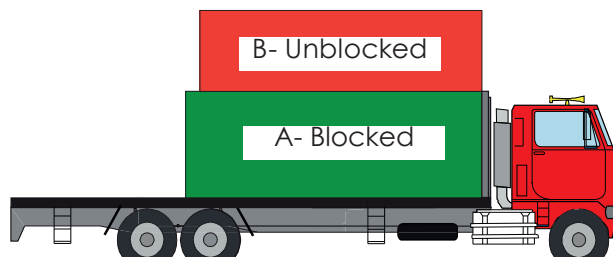


### Plasterboard Dunnage Condition

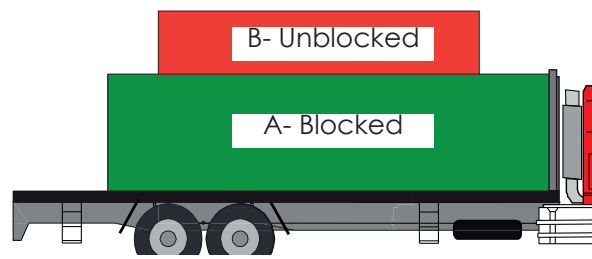


### Blocking Requirements - Headboards

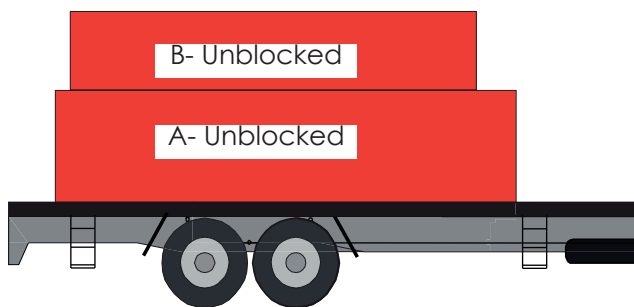




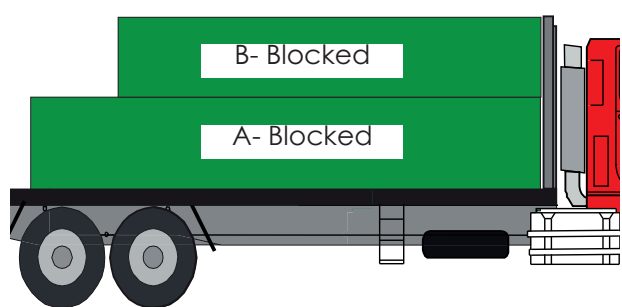
A is blocked, B is unblocked



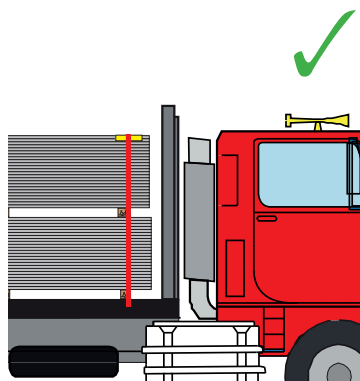
A is blocked, B is unblocked



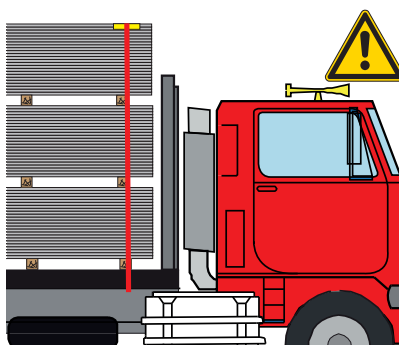
A and B are unblocked



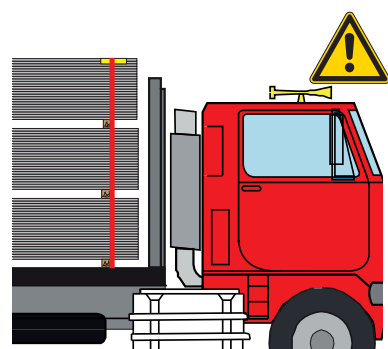
A and B are blocked



Blocked load



Top pack is Unblocked



Top pack is Unblocked

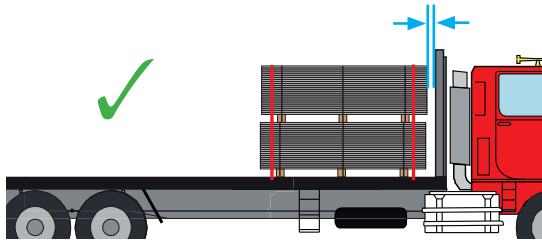


If the top pack in the load is higher than the blocking surface, then it is unblocked.

### Blocking

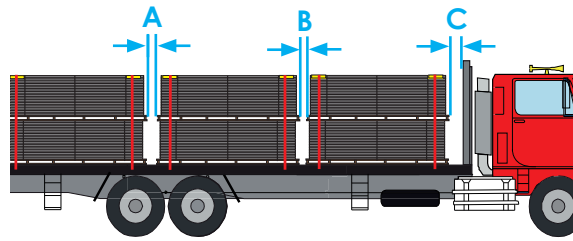
- ✓ When palletised load is blocked, then the gap between the pallet and blocking surface must be measured as shown below.

Single load



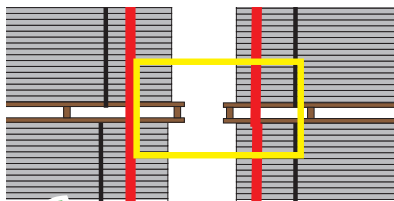
Maximum gap between the headboard and load must be less than 200mm.

Multiple load

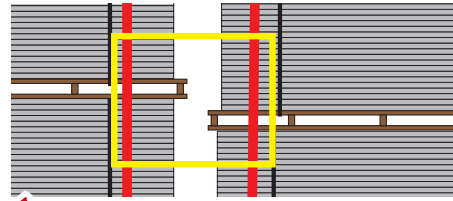


Maximum cumulative gap along the load must be less than 200mm.  
i.e.  $A+B+C = 200\text{mm}$  or less

- ✓ When a palletised stack is blocked against another palletised stack, then the pallets must be aligned to be considered as blocked.



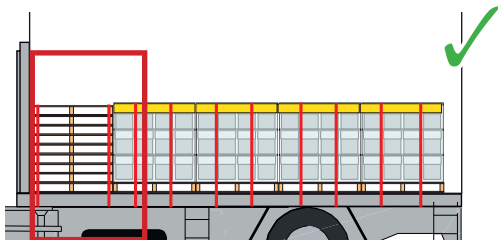
Blocked



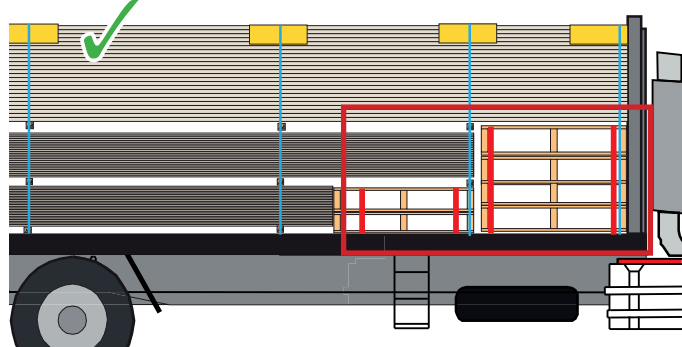
Unblocked

### Blocking - Using empty pallets

- ✓ A stack of empty pallets may be used for blocking or reducing the gap between headboard and the load.
- ✓ Apply two lashings over the stack of empty pallets.
- ⚠ Ensure sturdy, similar type and sized undamaged pallets are used.



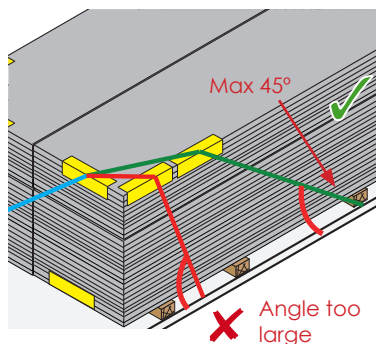
Using empty pallets for blocking



Using empty pallets for blocking- mixed load

## Blocking With Crossover Straps

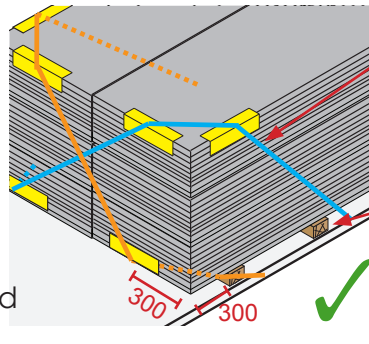
### Key Elements:



Maximum angle of crossover lashings to horizontal is 45°

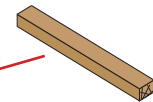


Anchor behind load post



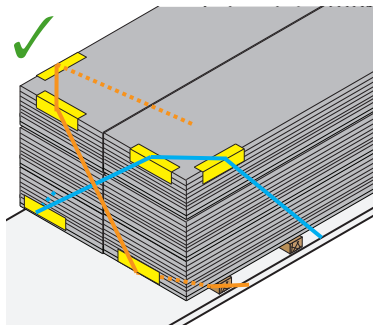
Set lower crossover strap approx. 300mm back and across from outer corner

Crossover straps - 600kgf pre-tension

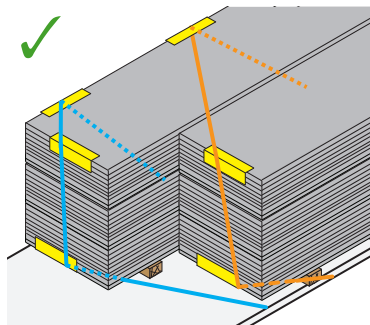


Raise load by placing dunnage under first layer

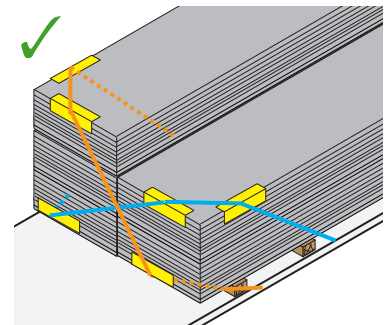
### Permissible Arrangements:



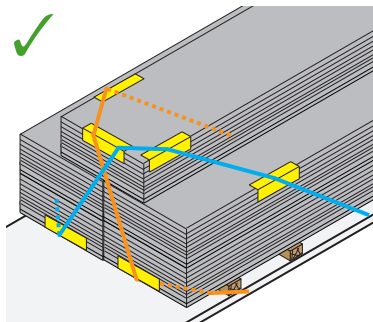
Same height, no offset



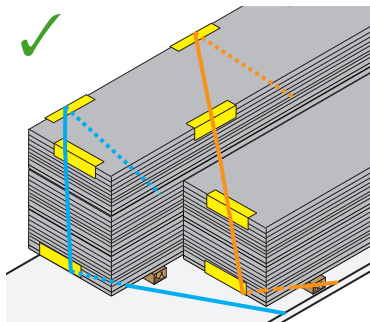
Same height, offset



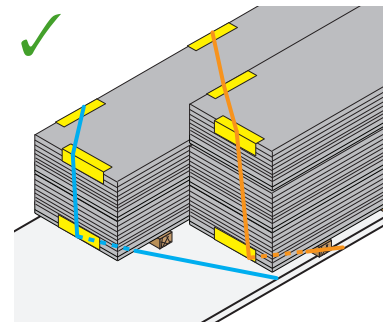
Different height, no offset



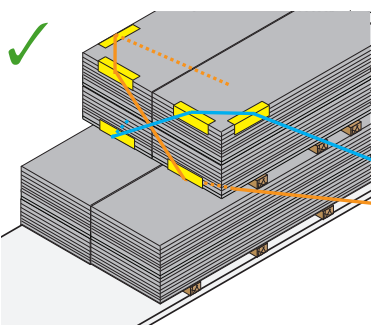
Pyramid stacked, no offset



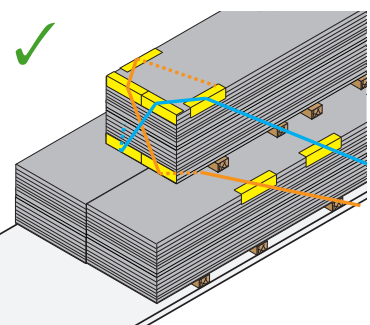
Different height, offset drivers side



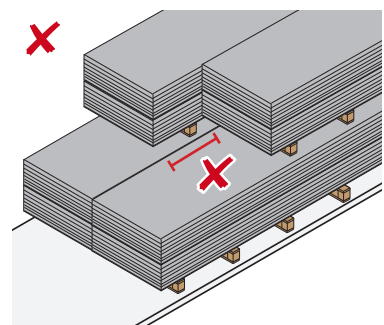
Different height, offset passenger side



Stacked, upper offset, flat face



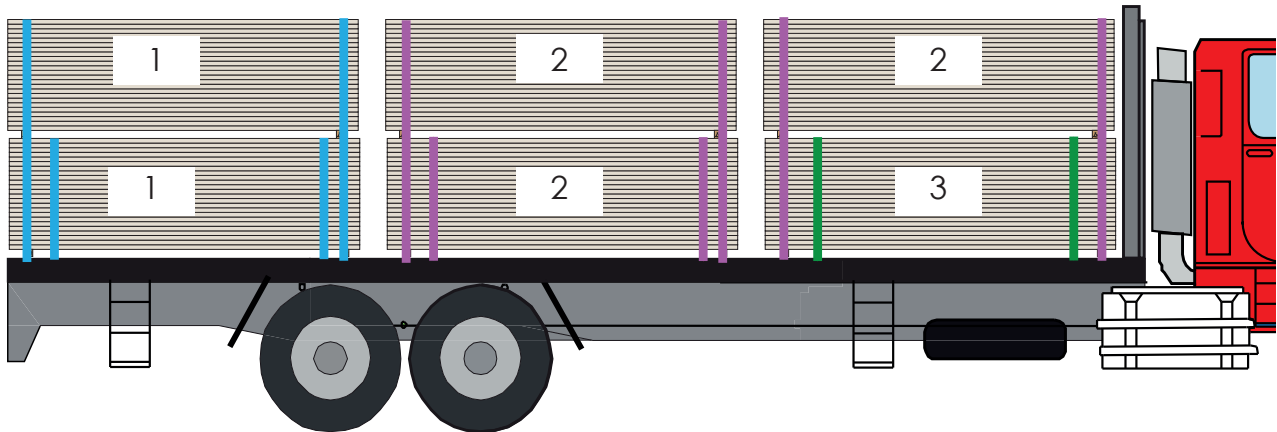
Stacked, single upper offset



Do not stack with upper offset

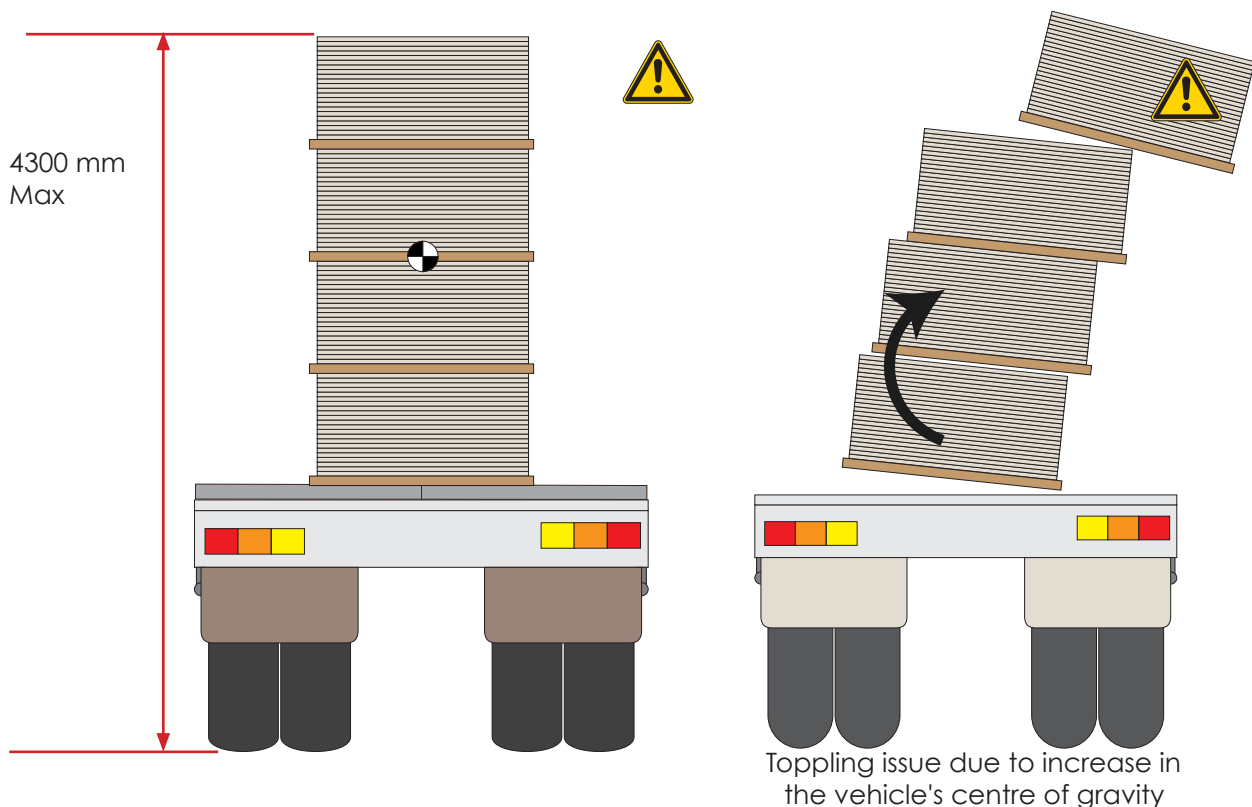
## Belly Strapping- Multi-drop stacks

- ✓ Multi-drop stacks must be strapped independent of other stacks, the order of this multi-drop is blue, pink and green.
- ⚠ Consider axle weight after each drop.



## Maximum Height of the load

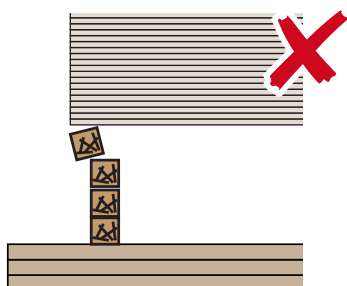
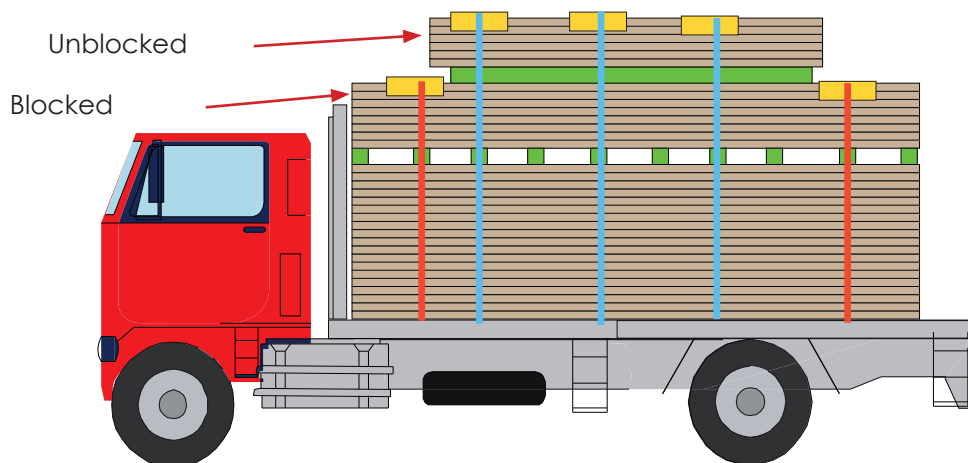
- ⚠ Maximum height of any load on the vehicle is 4300 mm from the ground (unless specified otherwise), tall loads are likely to topple due to the increase in the vehicle's centre of gravity.
- ⚠ Trucks with load exceeding maximum height limit will have high risk of rollover.



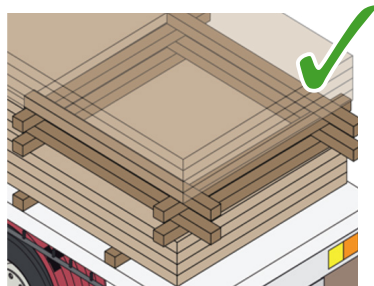


## Unitising parts of the load

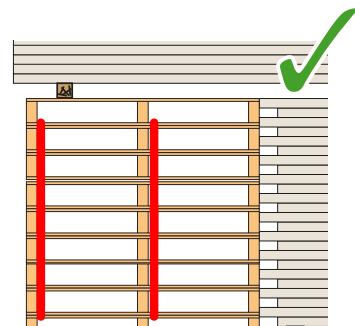
- ✓ The components of the load against the headboard should be unitised separately and restrained as a blocked load.
- ✓ The components of the load above the headboard should be unitised separately and restrained as unblocked load.
- ⚠ Ensure gaps are packed out using a stack of pallets, criss-cross nested dunnage, blocks can be used up to 3 layers, but pallets are more stable and a preferred option.
- ✗ Do not stack blocks / dunnage to fill larger gaps.



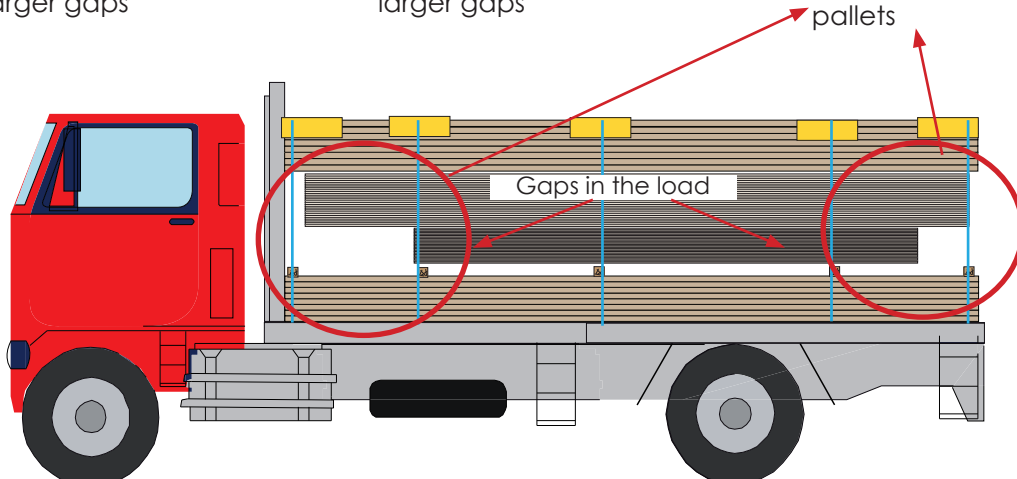
Do not stack dunnages to fill larger gaps



Nest dunnage to fill larger gaps

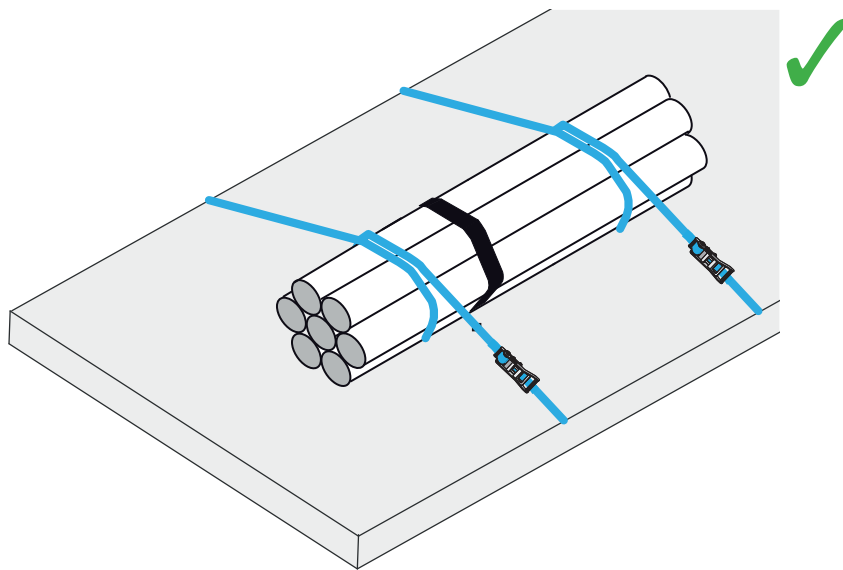


Fill gaps using stacked pallets

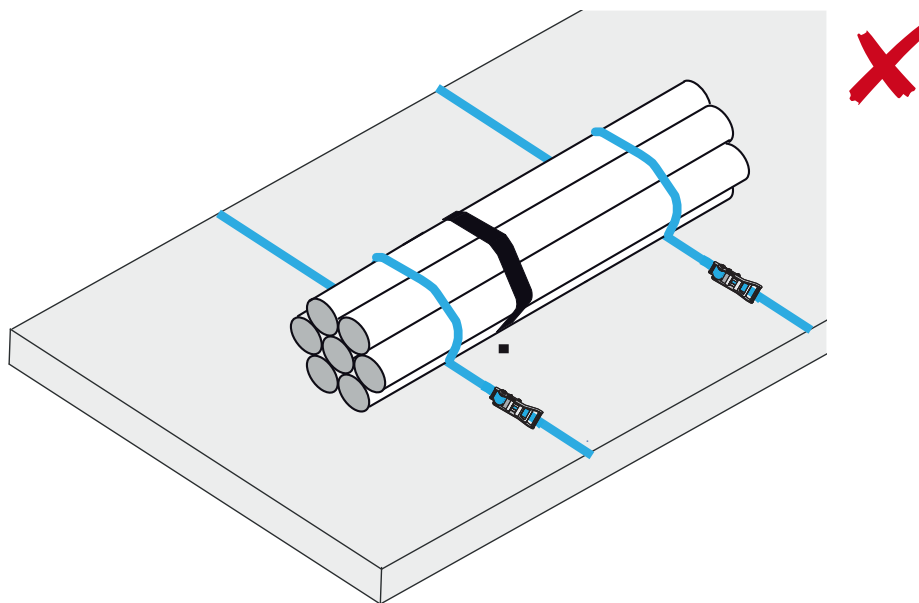


## Belly Wrapping

- ✓ Use belly wrapping with at least two lashings to further unitise and restrain small quantities of loose items such as Cornice or Rondo.
- ⚠ Ensure products such as Cornice and Rondo are unitised.
- ✓ Loop belly wrapped lashing over the top of the load to provide maximum lashing angle for tie-down restraint.
- ✗ Do not tie down both rondo and cornice products together as this may cause damage to the products.



Lashing over the top of the the load

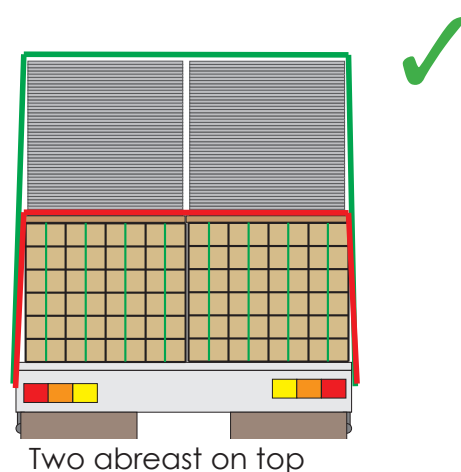
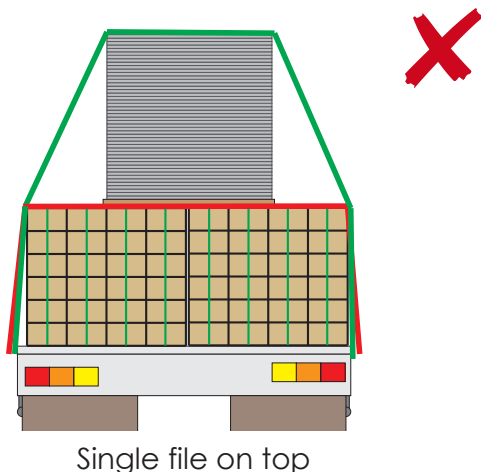
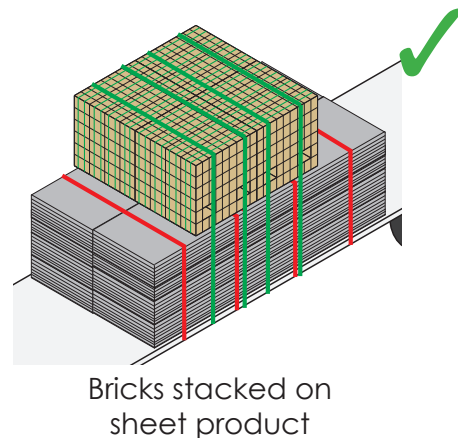
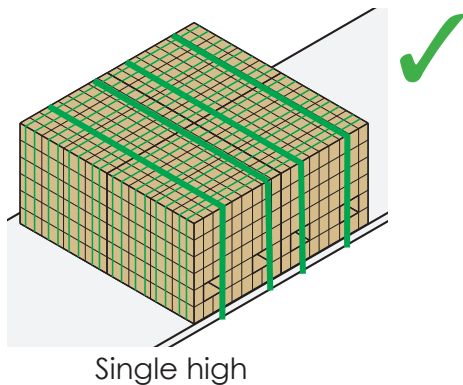


Lashing under the load



## Other products:

- ✓ Brick products must be stacked single high only.
- ✗ Do not stack brick products on top of any other products.
- ✗ Do not stack bulk products such as full pack of sheet product onto brick products.
- ⚠ CSR bradford insulation and sheet product may be loaded on top of brick packs provided that:
  - The axle weights on the truck are not exceeded;
  - The item loaded on top is two abreast;
  - The item stacked on brick products is restrained separately with adequate amount of restraint covering all the risks including toppling;



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