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www.visy.com.au

Information for transport operators carrying palletised VISY board products
Introduction of VISY Load Restraint Guide for Board products

VISY is proud to announce the completion of our *Load Restraint Guide – Board* (the Guide), which supports the safe and efficient load restraint of palletised board products leaving our sites.

Australia has a range of legislation that requires loads to be properly restrained for transit, most notably, the chain of responsibility legislation, which covers parties in the supply chain involved in road freight. Loads that are not positioned or restrained correctly could fall from the vehicle resulting in serious injuries and fatalities to drivers, other road users, and pedestrians. If a load was poorly restrained and shifted in transit, there is a risk of serious injury or fatalities when loading and unloading such loads.

VISY has a Safe Transport Management System that focuses on safe people, safe vehicles, safe loads, and safe journeys. Ensuring loads are safely and legally restrained can protect people from injury or fatality, and that's worth doing well.

Along with its team of internal subject matter experts, VISY engaged multi-award winners and noted industry load restraint experts, Engistics, to develop the Guide. Engistics Principal Engineer, Gavin Whitten (B.Eng. Hons (Mech), MIEAust), has certified the Guide, which means if a load is secured in accordance with the Guide, it will meet the Loading Performance Standards in the National Transport Commission Load Restraint Guide 2018. An excerpt of the Loading Performance Standards (the Standards) as referenced in the Heavy Vehicle National Law is attached for your information.

To ensure compliance with 4(d) of the Standards, drivers are encourage to keep a copy of the Load Restraint Guide – Board and the corresponding Certification in their vehicle when carrying this freight. These documents are available to be printed by each dispatch office, and copies are attached to this correspondence for your information.

Over coming weeks, our dispatch teams will be ensuring our board product loads are properly restrained in accordance with the Guide. Posters covering load restraint of board products in both tautliners and vans will soon be on display in relevant dispatch areas. We encourage your drivers and operations teams to engage with the process where possible to ensure a thorough understanding of the requirements of the Guide.

Should you have any questions or wish to discuss further, please connect with your VISY associate.

Yours sincerely,

Jodie Broadbent
National Safe Transport Manager
Visy Industries

May 2021

Encl. Appendix A – Load restraint legislation
Attachment – VISY Load Restraint Guideline – Board Product
Attachment – Load Restraint Certification – Board Product

Attachment A – Load restraint legislation

Schedule 7 – Loading requirements and Loading Performance Standards

1. Loading

1) A load on a heavy vehicle must not be placed in a way that makes the vehicle unstable or unsafe.
2) A load on a heavy vehicle must be secured so it is unlikely to fall or be dislodged from the vehicle.
3) An appropriate method must be used to restrain the load on a heavy vehicle.

2. Loading Performance Standards

1) A load on a heavy vehicle must be restrained by a load restraint system that—
   a) prevents the load from moving in relation to the heavy vehicle (other than movement allowed under subsection (2)) in the circumstances mentioned in subsection (3); and
   b) at a minimum, is capable of withstanding the forces that would result in the circumstances mentioned in subsection (3).

2) A load may move in relation to the heavy vehicle if—
   a) the vehicle's stability and weight distribution are not adversely affected by the movement; and
   b) the load does not become dislodged from the vehicle.

   Examples of load movement that may be permitted under subsection (2)—
   - a load contained within the sides or enclosure of the heavy vehicle that is restrained from moving horizontally may be able to move vertically
   - a load of very light objects, or a loose bulk load, that is contained within the sides or enclosure of the heavy vehicle may be able to move horizontally and vertically
   - a bulk liquid load contained within the sides or enclosure of the heavy vehicle

3) For subsection (1), the circumstances are that the loaded vehicle is subjected to—
   a) any of the following, separately—
      i) 0.8g deceleration in a forward direction;
      ii) 0.5g deceleration in a rearward direction;
      iii) 0.5g acceleration in a lateral direction; and
   b) if friction or limited vertical displacement is relied on to comply with paragraph (a)—0.2g acceleration in a vertical direction relative to the load.

4) However, the heavy vehicle's load restraint system is taken to comply with subsection (1) for a journey if—
   a) a mass or dimension exemption is in force for the vehicle for the journey; and
   b) the vehicle complies with the mass or dimension exemption; and
   c) an engineer has given a certificate—
      i) describing the load restraint system; and
      ii) certifying that the load restraint system is suitable to safely restrain the load, taking into consideration the nature of the load and the conditions reasonably expected to be experienced during the journey; and
   d) the driver of the vehicle keeps a copy of the engineer's certificate in the driver's possession during the journey.

5) In this section—

chartered engineer means an individual who has been awarded chartered status by Engineers Australia.

engineer means a chartered engineer or a registered professional engineer.

g means gravitational acceleration and is equal to 9.81m/s2.

registered professional engineer means an individual who is registered as a professional engineer by the Association of Professional Engineers Australia.

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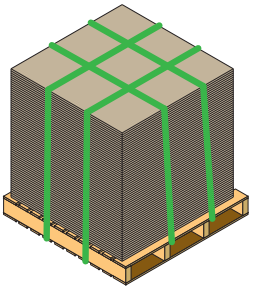
This Guideline:



- Applies to VISY Board product (flat boxes, cardboard sheets, pre-made boxes and lids) and Glama Board product transported by road in Australia.
- Is a loader and driver guide for load restraint certification **E00937-LRC1** (designed to the loading performance standards of the NTC Load Restraint Guide, 2004 & 2018 editions).

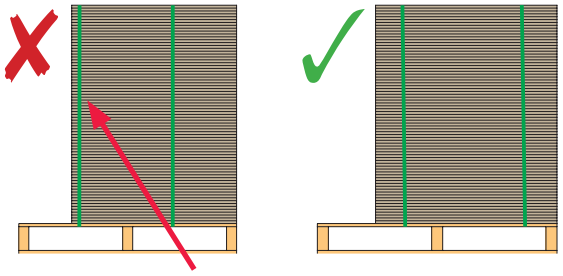
1. Packaging

✓ Packaging should be capable of withstanding transportation forces.

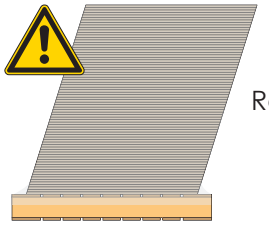
✓ All board items must be unitised, and if on a pallet, must be unitised to a pallet (strapping and/or wrapping depending on customer requirements).

✓ Packaging preferably consists of minimum two PET straps each way. Stretch wrap and other wrappings depend on customer requirements.

⚠ Under sized footprints must have a gap less than 37 mm each side (75 mm total) to be blocked. Gaps larger require the product to be tied down.



Strap too close to edge of product



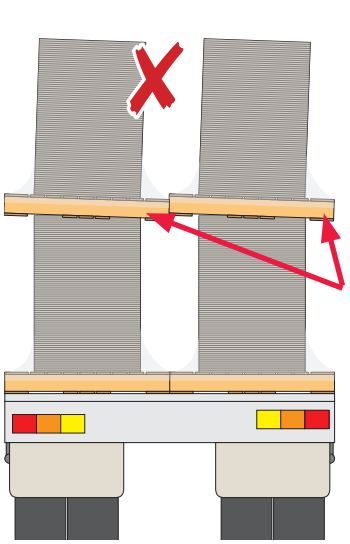
Restack racked packs

✗ Do not strap close to outer edge of product.

⚠ Racking packs must be repacked.

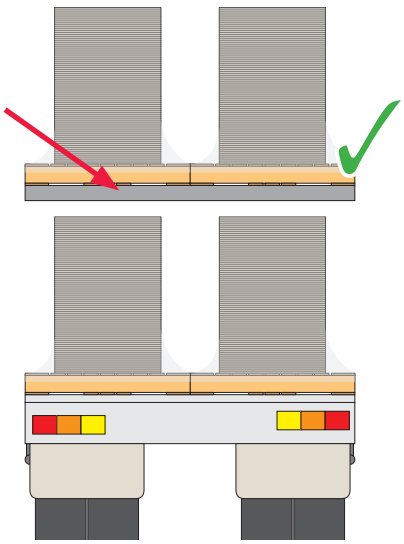
✓ Offset strapping to align with product or position product centrally on pallet.

✗ Do not stack pallets of narrow product (>200 mm smaller than pallet). Use a mezzanine deck trailer.



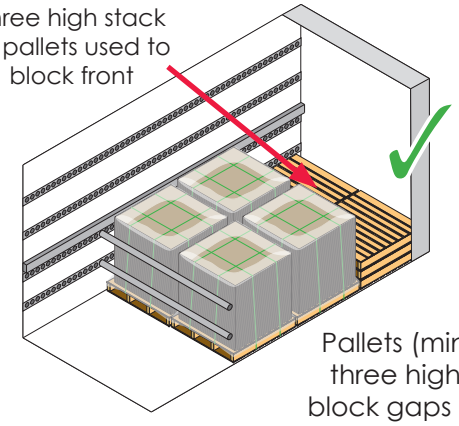
Toppling risk of top pallets.

Use mezzanine deck trailer for pallets with narrow product

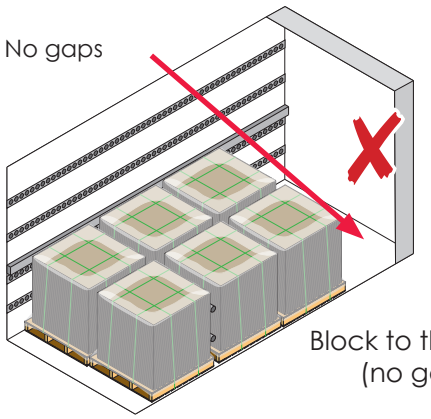


2. Restraint - Van Body *(e.g. Pantech)*

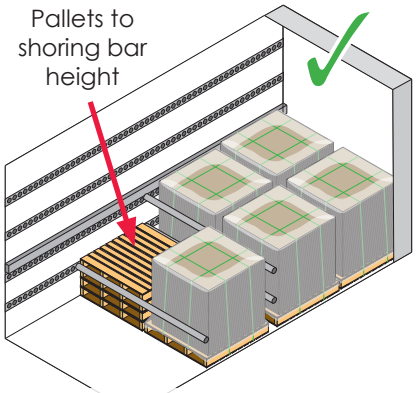
- ✓ Gaps across the trailer must be less than 150 mm total. For product with certified packaging, measured between pallet bases otherwise measured to the product.
- ✓ Gaps along the trailer between product must cumulatively be less than 600 mm unless certified packaging.
- ✓ Load from the front (no gaps between pallets/product, whichever contact). Always use a shoring bar set across the last row at the correct height.
- ✓ If more than 600 mm gap to the trailer rear, use a shoring bar per 1250 kg of product. Place between rows and at rear.



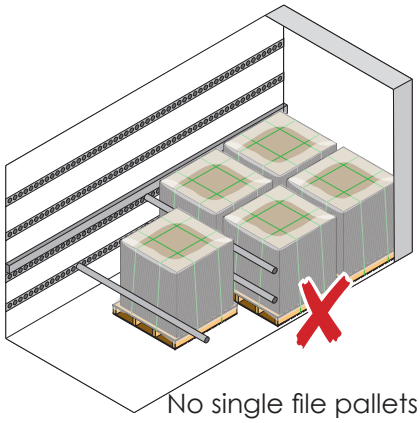
Pallets (minimum three high) can block gaps at front



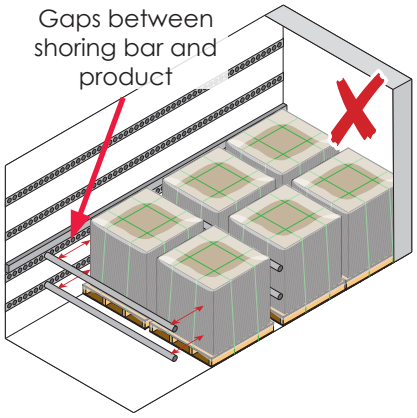
Block to the front, (no gaps)

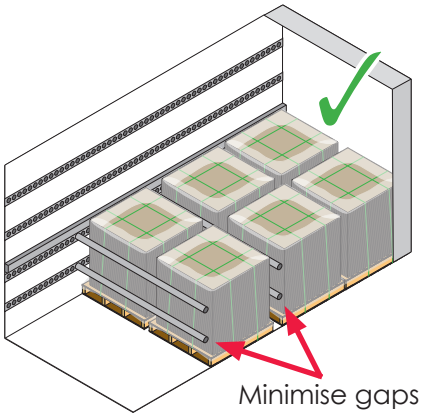


Use empty pallets to fill gap on passenger side

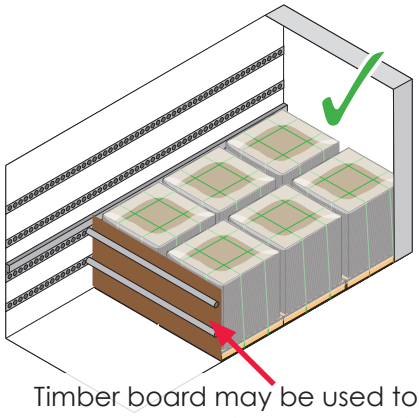


No single file pallets

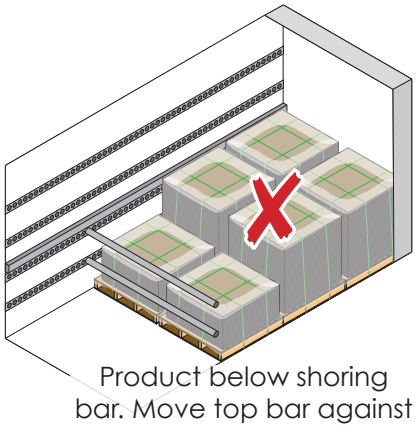




Minimise gaps



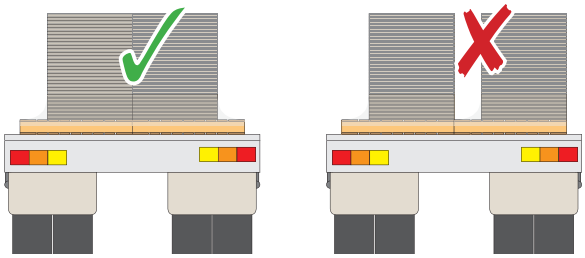
Timber board may be used to assist blocking (best practise)



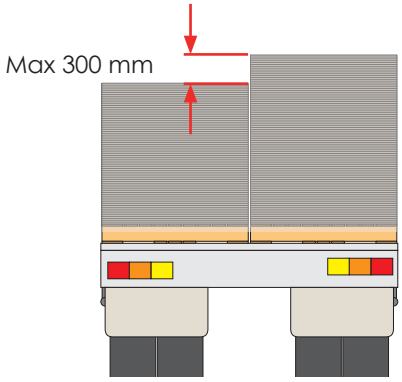
Product below shoring bar. Move top bar against forward row.

3. Restraint - Tie Down

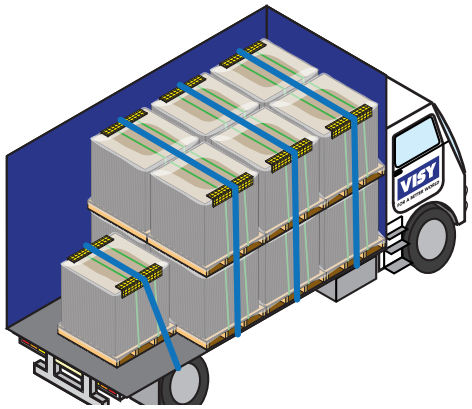
- ✓ Offset product must be butted together at the centre of the trailer.
- ✓ Maximum 300 mm height difference between pallets in any row.
- ✓ Single file pallets must be loaded in the centre of the trailer, not to one edge.
- ✓ Block pallets to front of trailer wherever possible. Maintain minimal gaps between pallets (notionally 20 mm).
- ⚠ Where gaps exist in front of pallets, all subsequent rows are considered unblocked.
- ⚠ Unless packaging is certified, product underhang cumulative greater than 100 mm is considered **not blocked**.
- ✓ All equipment used for restraint must be in good working order. This includes straps, winches, vehicle structures, etc.



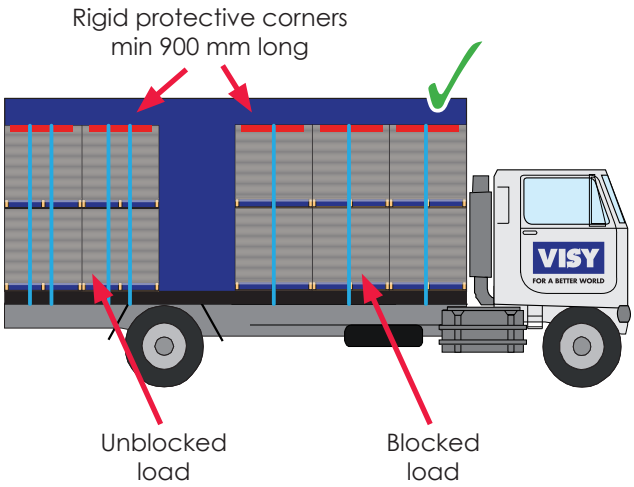
Rotate off centre pallets to remove gaps

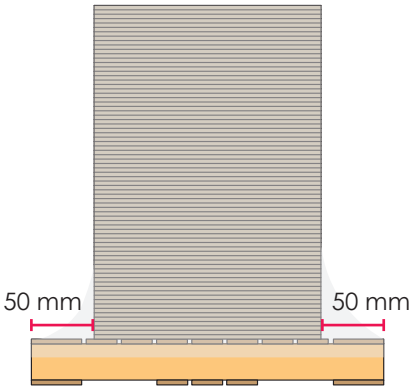


Maximum height difference between adjacent pallets 300 mm



Single file pallets loaded in centre of trailer

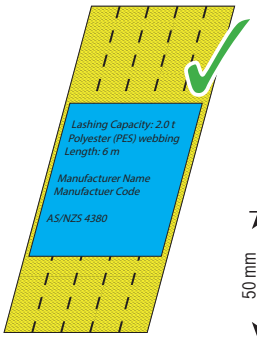




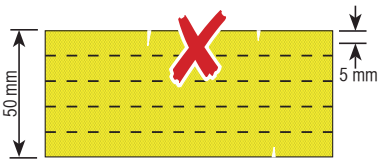
Unless packaging is certified, maximum underhang of 100 mm for the product to be considered blocked

3. Restraint - Tie Down (continued)

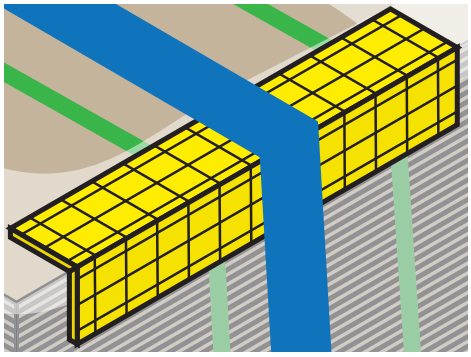
- ✓ Webbing straps must be a minimum of 50 mm wide.
- ✓ Thick rigid corner protectors (or equivalent) minimum 900 mm long must be used under all straps.
- ✓ Fully tension all webbing straps.
- ✓ Gated trucks must have straps go through the gates (not over them).
- ⚠ Straps must come straight down.
- ✓ Secure all loose items (e.g. forklift slippers).
- ✓ For **blocked** loads - Up to 1650 kg per pallet single file or combined two abreast row weight of 2000 kg per webbing strap.
- ✓ For **unblocked** loads - Up to 350 kg per pallet single file or combined two abreast row weight of 500 kg per webbing strap.

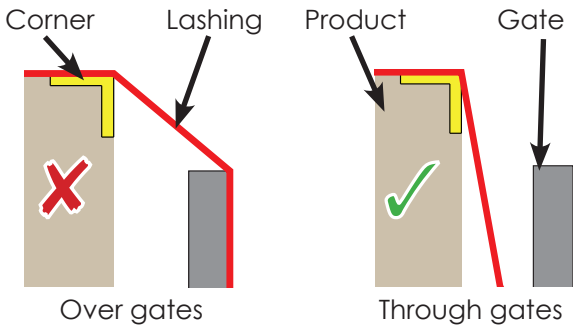


Webbing Strap

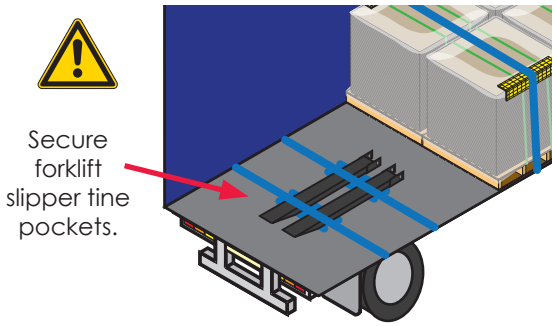


Worn webbing example


Rigid corner protectors (minimum 900 mm long) must be used under all straps



Tie down lashing angles affected by gates



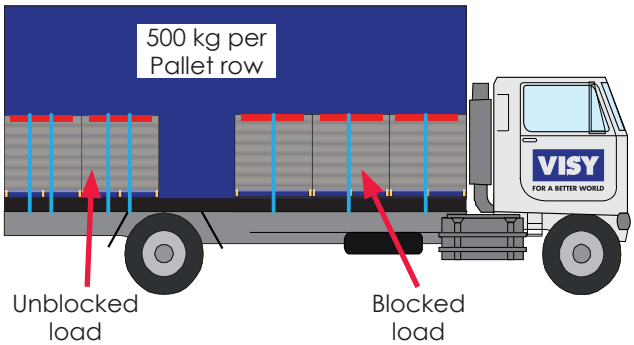
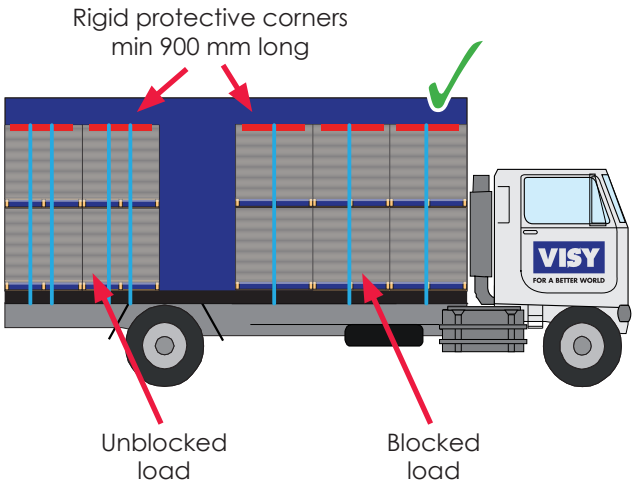
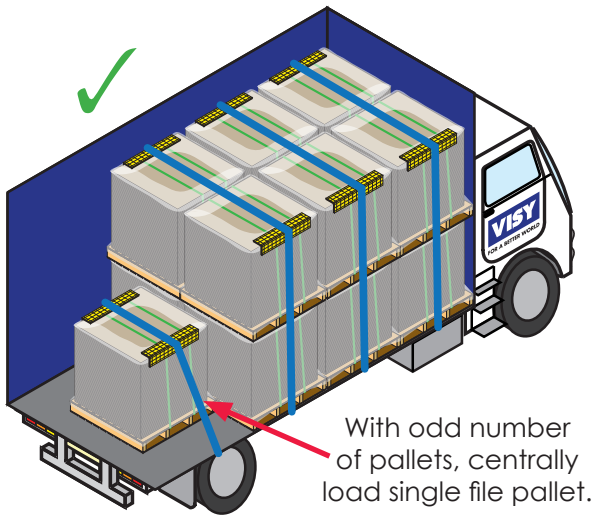


Table 1: Number of webbing straps

Row weight (kg)	Two Abreast 		Single file 	
	Blocked	Unblocked	Blocked	Unblocked
Up to 350	1	1	1	1
351 – 700	1	2	1	2
701 – 1050	1	3	1	3
1051 – 1400	1	3	1	4
1401 – 1750	1	4	2	Not practical
1760 – 2100	2	Not practical	2	Not practical





4. Restraint - Load rated curtains

⚠ Not all curtains are rated. Check the curtains have a rating and do not exceed it. This is typically on the curtain.

✓ With Visy board product and certified packaging use the curtain rating, otherwise only suitable for light weight product (less than 100 kg per pallet).

✓ Loaded from headboard, minimising gaps between pallets (less than 20 mm). Maximum 600 mm gap at rear.

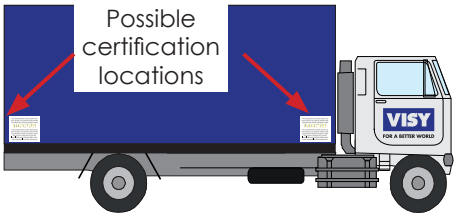
✓ To avoid having to use webbing straps, all pallet spaces on the vehicle must be filled.

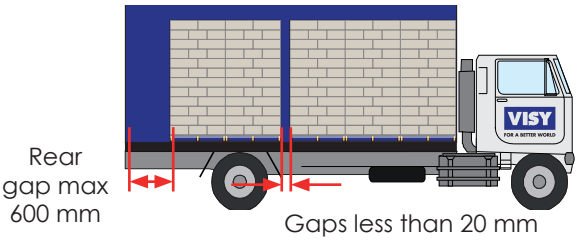
⚠ For product up to 100 kg per pallet space (excluding the pallet weight) with empty spaces at the rear, the rear row may be tied down for up to 5 rows. (Tie the last two for up to 10 rows).

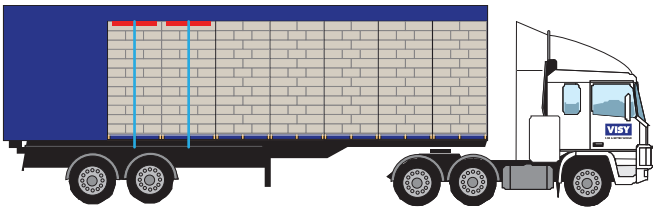
⚠ Single file rows must be centred and tied down.

⚠ For heavier loads (>100 kg of product per pallet) with empty pallet spaces, all pallets must be tied down per section 3.

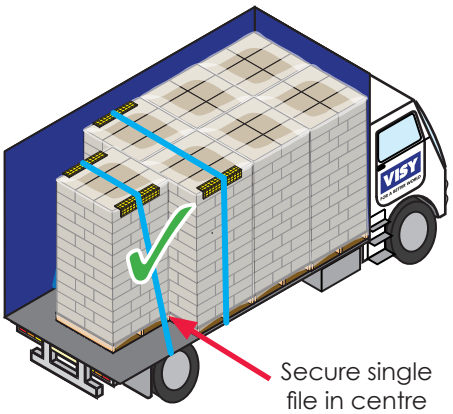
✓ Secure all loose items (e.g. forklift slippers cannot be left loose under pallets).



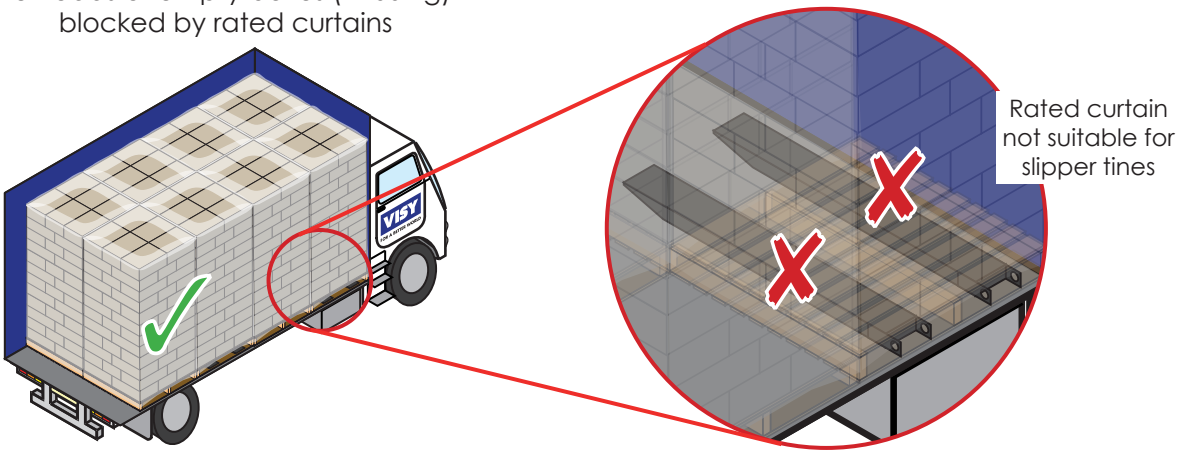




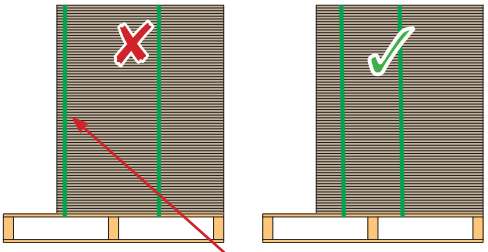
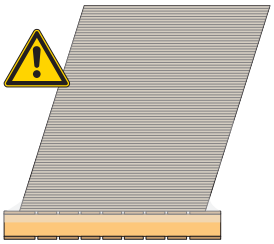
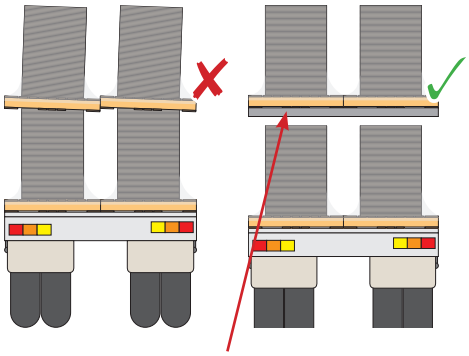
For product up to 100 kg per pallet space, 1 webbing strap at rear if gap per 5 rows.

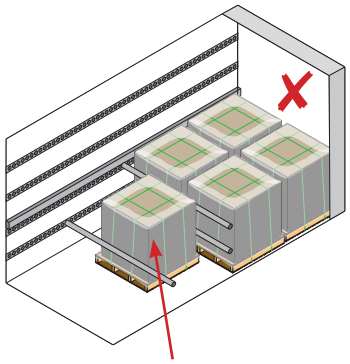
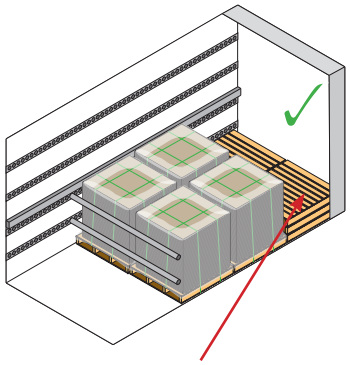
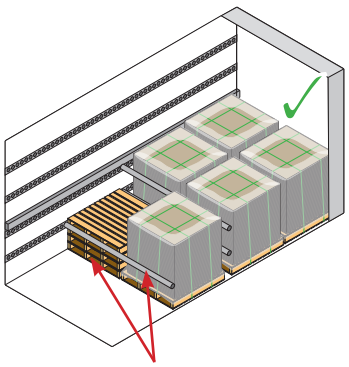


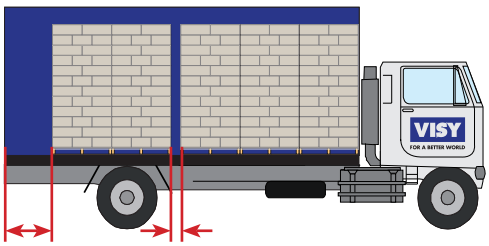
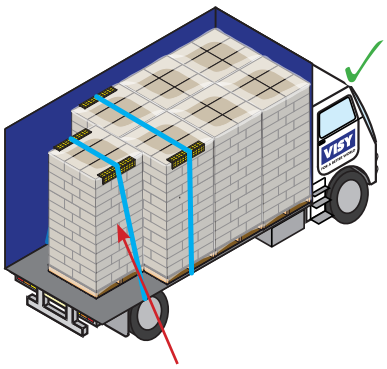
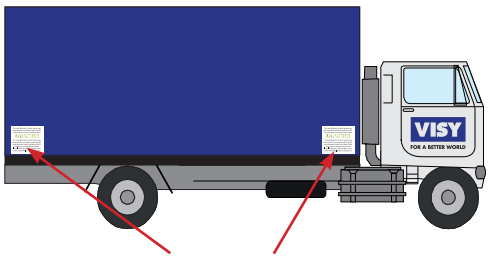
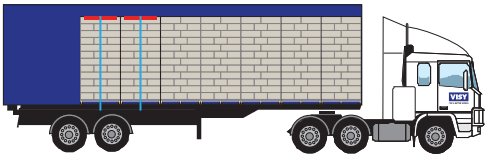
Full loads of empty boxes (<100 kg) blocked by rated curtains

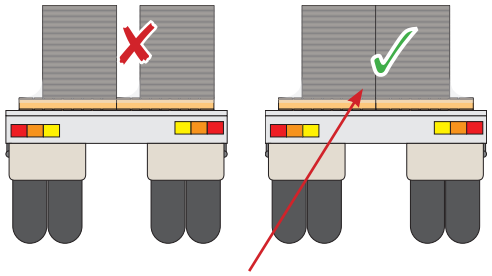
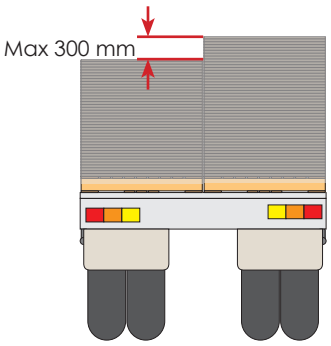


Load restraint system	VISY Board product transported by road.	
Client		
Jodie Broadbent VISY Logistics Pty Ltd	Level 11 2 Southbank Blvd Southbank VIC 3006	ABN: 12 089 137 986 E: jodie.broadbent@visy.com.au
Load restraint Certifier		
Engistics Pty Ltd	PO Box 530 Figtree NSW 2525	ABN: 39 140 660 037 E: enquiries@engistics.com.au
Declaration	The load restraint system described herein is certified by Engistics to be compliant with the loading performance standards contained within the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation* (1 October 2018). In addition it also conforms with the performance standards of the *Load Restraint Guide* 2nd Edition (2004) and 2018 edition published by the National Transport Commission (NTC).	
Date of certification	16 October 2020	
Certification reference	Engistics reference: E00937-LRC1 (Job file E00937)	
Description of the load	VISY Board product (flat boxes, cardboard sheets, pre-made boxes and lids) and Glama Board product, unitised by PET strapping or other wrapping depending on customer requirements. Some items may have *Certified Packaging*. This means the packaging is capable of the loading performance standards (0.8g forwards, 0.5g sideways, 0.5g rearwards), including when stacked (if applicable).	
Description of the vehicle	Tri axle semi-trailer (van body, tautliner with or without rated side curtains, tautliners with or without rated gates). May include tautliners with mezzanine decks. Trailer deck must be clean and dry. The surface may be flat steel painted with PPG 2K line paint (premium 2 pak paint) per Vawdrey Trailers or checker plate steel. For loads requiring tie down straps, the minimum coefficient of friction for the board product or pallet to deck (coated or otherwise) is 0.4 and must be maintained throughout the life of the deck.	
Load restraint equipment	The equipment required will depend on the system selected in the following pages. It may include (but not limited to): • 50 mm webbing strap conforming to AS/NZS 4380; • Ratchet or winch with a minimum average pretension across the load of 300 kg force (conforming to AS/NZS 4380); • Vehicle structures such as load rated curtains, load rated gates, Pantech body and Tautliner headboard; • Shoring bars (minimum rated capacity 227 kg); • Rigid corner protectors (900 mm minimum in length).	

Packaging		
Loading and configuration (general)	• All board items must be unitised, typically to a pallet (strapping and/or wrapping depending on customer requirements). • Packaging should be capable of withstanding transportation forces. There are limitations on how product that is not capable can be transported. • Packaging preferably consists of minimum two PET straps each way. Stretch wrap and other wrapping depends on customer requirements. • Under sized footprints must have a gap less than 37 mm each side (75 mm total) to be blocked. Gaps larger require the product to be tied down unless *certified packaging*. • Do not strap close to edge of product. • Offset strapping to align with product or position product centrally on pallet. • Racking packs must be repacked. • Do not stack pallets of narrow product (>200 mm smaller than pallet). Use a mezzanine deck trailer or carry single high.	 Strap too close to edge of product  Restack racked packs  When stacking narrow product, use a mezzanine deck trailer
Load Restraint Method	• Under sized footprint product with more than 37 mm gap each side (75 mm total) must be tied down unless certified suitable for a specific containment system.	

Van Body (eg Pantech)		
Loading and configuration	• Load from the front (no gaps between pallets/product, whichever contact). Always use a shoring bar set across the last row at the correct height. • Gaps across the trailer must be less than 150 mm total. For product with *certified packaging*, measured between pallet bases otherwise measured to the product. • Gaps along the trailer between product must cumulatively be less than 600 mm unless *certified packaging*. • No single file pallets.	 No single file pallets
Load Restraint Method	• Stacked empty pallets may be used to block the front. These must be a minimum of three pallets high. • No single file pallets. Stacked empty pallets may be used to fill the gap on passenger side. • Pallets to be stacked to shoring bar height. • If more than 600 mm gap to the trailer rear, use a shoring bar per 1250 kg of product. Place between rows and rear. • Always use a shoring bar set across the last row. • Minimise gaps between shoring bar and product. • Timber board (e.g. plywood) may be used to assist blocking to the shoring bar. This is considered best practice.	 Three high stack of pallets used to block front  Use stacks of pallets to fill gap. Use shoring bar to block the rear

Tautliner with Rated Side Curtain		
Loading and configuration	• With VISY board product and *certified packaging* use the curtain rating, otherwise only suitable for light weight product (less than 100 kg per pallet). • Loaded from headboard with gaps between pallets less than 20 mm. Maximum gap of 600 mm at rear. • To avoid having to use webbing straps, all pallet spaces on the vehicle must be filled. • Single file rows must be centred. • All loose items (e.g. forklift slippers) need to be secured (not just loaded in pallet pockets).	  Secure single file in the centre
Load Restraint Method	• Not all curtains are rated. Check the curtains have a rating. This is typically on the curtain. Do not exceed 100 kg per pallet unless *certified packaging*, else do not exceed the curtain rating. • For product up to 100 kg per pallet space (excluding the pallet weight) with empty spaces at the rear, the rear row may be tied down for up to 5 rows. (Tie the last two for up to 10 rows). • Single file rows must be centred and tied down. • For heavier loads (>100 kg of product per pallet) with empty pallet spaces, all pallets must be tied down per Tie-down section. • All loose items must be secured (eg forklift slippers cannot be left loose under pallets).	 Possible certification locations  For pallets up to 100 kg, 1 webbing strap at rear if gap per 5 rows

Tie-Down Method		
Loading and configuration	• Offset product must be butted together at the centre of the trailer. • Maximum 300 mm height difference between pallets in any row. • Single file pallets must be loaded in the centre of the trailer, not to one edge. • Block pallets to front of trailer wherever possible. Maintain minimal gaps between pallets (notionally 20 mm). • Where gaps exist in front of pallets, all subsequent rows are also unblocked. • Unless *certified packaging*, product underhang cumulative greater than 100 mm is considered not blocked.	 Rotate off centre pallets to remove gaps  Maximum height difference between adjacent pallets is 300 mm

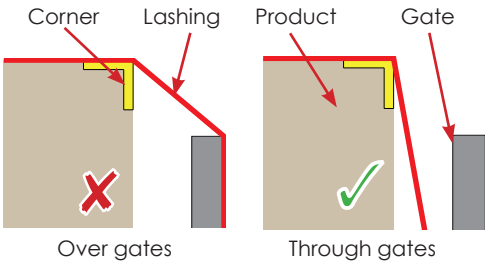
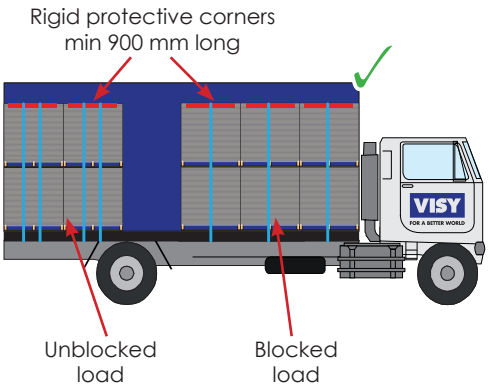
Tie-Down Method		
Load Restraint Method	• Thick rigid corner protectors minimum 900 mm long must be used under all straps. • Webbing straps must be fully tensioned (min 300 kg.f averaged across the load). • Gated trucks must have straps go through the gates (not over them). Straps must come straight down, not wrap around a gate on a diagonal. • Secure all loose items (e.g. forklift slippers). • For **blocked** loads - Up to 1650 kg per pallet single file or combined two abreast row weight of 2000 kg per webbing strap. • For **unblocked** loads - Up to 350 kg per pallet single file or combined two abreast row weight of 500 kg per webbing strap. • Table 1 provides an easy reference for how many lashings will be required.	  Weight limits per strap are based on minimum lashing angle for single file of 43° and two abreast of 56°.

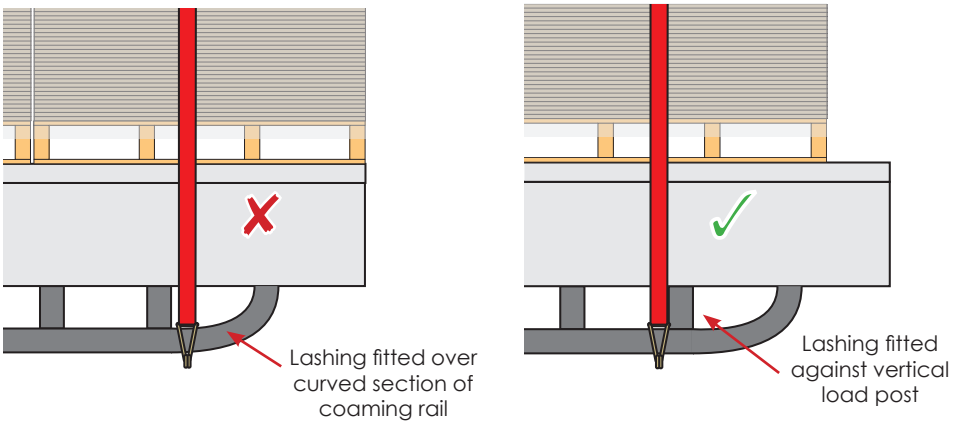
Table 1: Number of webbing straps

Row weight (kg)	Two Abreast 		Single file 	
	Blocked	Unblocked	Blocked	Unblocked
Up to 350	1	1	1	1
351 – 700	1	2	1	2
701 – 1050	1	3	1	3
1051 – 1400	1	3	1	4
1401 – 1750	1	4	2	Not practical
1760 – 2100	2	Not practical	2	Not practical

Operational advice

The following are considerations that need to be addressed outside of a certified load restraint system. Potential minimum controls for the identified risks are listed. The end user is responsible for implementing appropriate controls and monitoring of the controls.

- Damage to, or incorrect installation of, restraint components. Refer to AS/NZS 4380 for relevant wear limits and other information.
  - ◊ Inspection of restraint lashings and ratchets prior to use.
  - ◊ Use wear sleeves to protect webbing straps from sharp edges.
- Lashings working loose (e.g. load settling).
  - ◊ Do not fit lashing to curved sections of coaming rail;
  - ◊ Lashing ideally fitted against and rearward of vertical load post;
  - ◊ Re-tension ratchets on trailer once travelled a short distance from loading point (e.g. 20 km's from loading point);
  - ◊ Alternate tensioning side of every second lashing where multiple lashings are required;
  - ◊ Re-check all lashings after the last one has been tensioned.



- Friction
  - ◊ Painted decks need to have suitable friction and be maintained to avoid them becoming highly polished (low friction).
- Blocking materials
  - ◊ Ensure blocking material is capable of transportation forces. Pallets must have their main bearers blocking the packs (i.e. bearers vertical).
- Human error (e.g. incorrect quantity/type of lashings applied)
  - ◊ Auditing, especially focusing on forward blocking, and correct pretension from ratchets.
- Manual handling
  - ◊ Consideration for correct technique when handling and "throwing" the lashings over the load.

Operational advice (continued)	• Height safety ◊ The supplied load restraint system should not require work from above the ground. If a driver needs to access the trailer deck, review safe methods of access (e.g. use an extension bar to install corner protectors, if access is required to fit packing material to block the load use a height safety platform, etc.). • Product protection ◊ Rigid protective corners must be used between the strap and board product. • Axle loads ◊ Do not exceed axle loads. This remains the responsibility of the truck driver, loader and loading manager to ensure legal axle weight limits. These risks need to be reviewed and implemented by the end user. Ongoing operational reviews of the risks should be undertaken to ensure the controls are effective and that new risks are identified.
Appendix A: Restraint Calculations	
Forwards, Rearwards and Sideways	$m \times c_{x,y} \times g \leq \mu \times m \times g + n \times \mu \times F_T \times \sin \alpha$
Vertical	$m \times c_z \times g \leq n \times F_T \times \sin \alpha$ Where: m is mass (kg) c_x = 0.8 acceleration coefficient (forwards) $c_{x,y}$ = 0.5 acceleration coefficient (rearwards and sideways) c_z = 0.2 acceleration coefficient (vertical) g is gravitational acceleration (9.81 m/s^2) μ is the coefficient of friction n is the number of lashings α is the lashing angle as measured from the horizontal F_T is the Tension force of a lashing device (N) Assumptions: 1. Minimum coefficient of friction between pallet/product and deck is 0.4. 2. Webbing straps are tensioned to a minimum 2943 N. 3. Single file pallet tie down angle minimum 43° (~700 mm high) and two abreast minimum angle 56°. 4. Packaging of a single pallet is capable of 0.48 g. 5. Shoring bars minimum 227 kg capacity.