

LOAD RESTRAINT GUIDELINE

Building Envelope Profiles - UK

1. This guideline applies to:

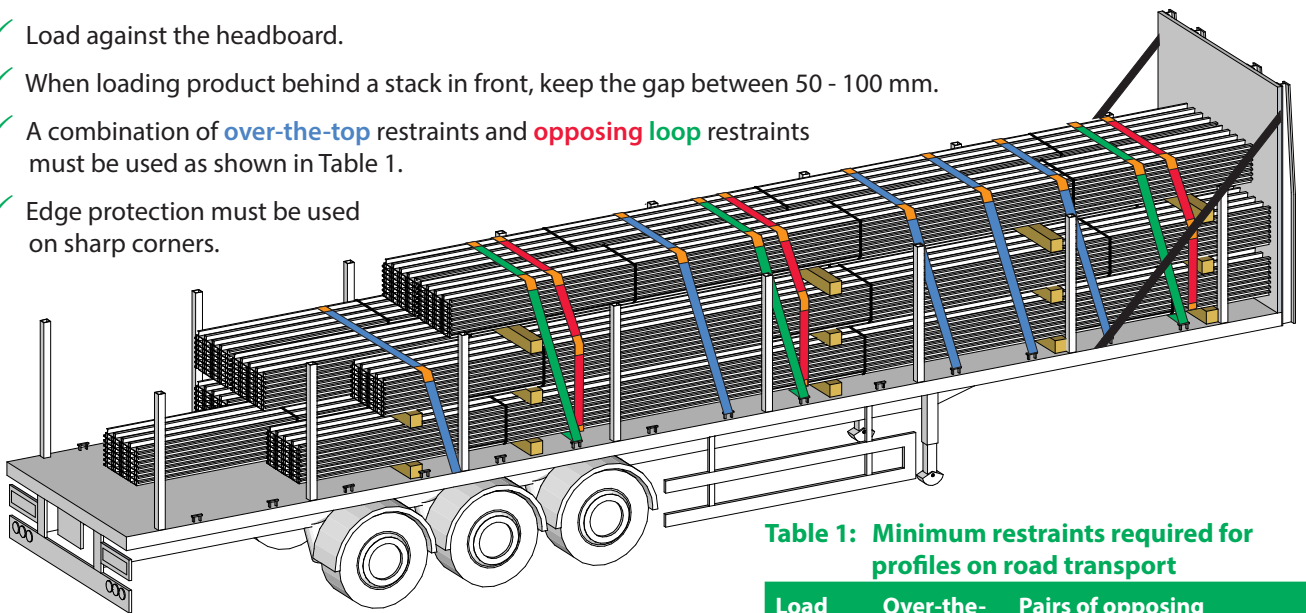
- Building Envelope Profiles banded in packs.
 - Lowest packaged product on product friction factor $\mu = 0.36$; tested according to EN 12195-1:2010 Annex B.1.2.
- Note: This Load Restraint Guideline does not apply to RoofDek D200 or Structural Liner Trays.*

2. Equipment requirements

- All webbing straps must be compliant with EN 12195-2, minimum lashing capacity LC 2000 daN.
- Hammock straps can be used for the **over-the-top** and **opposing loop** restraints on panels if preferred.
- Headboard or forward blocking to cover the front of the load or facilities available to apply cross-over straps, see Section 4.
- Headboard must be capable of withstanding a force of 100 kN i.e. approximately 10 tonnes. See Technical Information Sheet *TIS-0010 Trailer headboards* for more information.
- Side pins are recommended for loading and unloading safety.

3. Overview of restraint system for road transport profile loads

- ✓ Load against the headboard.
- ✓ When loading product behind a stack in front, keep the gap between 50 - 100 mm.
- ✓ A combination of **over-the-top** restraints and **opposing loop** restraints must be used as shown in Table 1.
- ✓ Edge protection must be used on sharp corners.



Shown for a 16 t load against a 10 t headboard

Table 1: Minimum restraints required for profiles on road transport

Load weight	Over-the-tops		Pairs of opposing loops	Total
0 - 15 t	3	+	3	= 9
15 - 20 t	5	+	3	= 11
20 - 26 t	6	+	4	= 14

This Load Restraint Guideline is designed and tested to meet the forces for road and sea transport as stated in EN 12195-1:2010 and VDI 2700. Due to the nature of the product the Standard Tension Force is assumed to be 100 daN or higher.

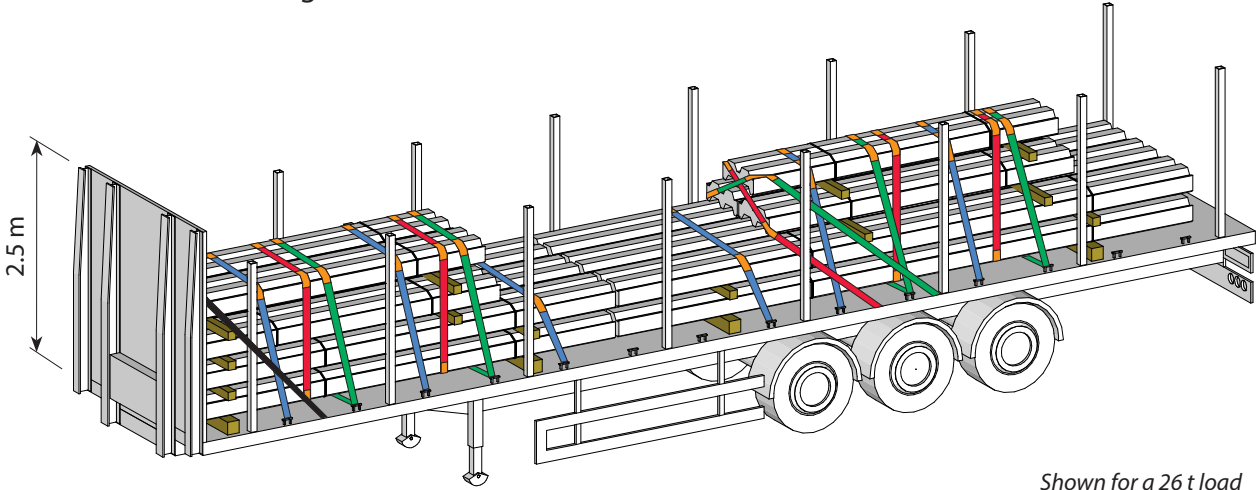
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4. Forward restraint options

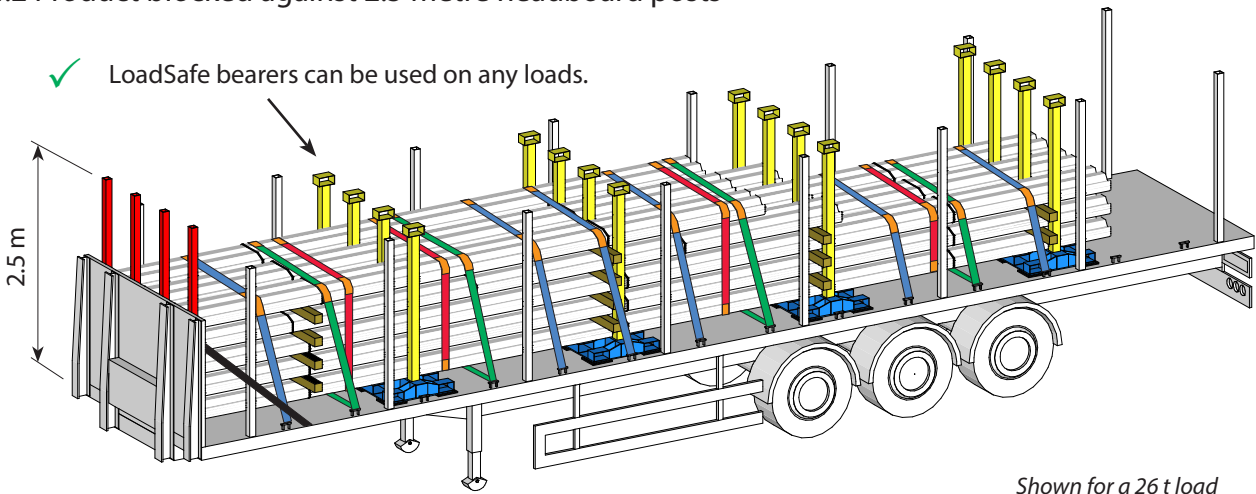
The following options can be used for forward blocking of the load.

4.1 Product blocked against a 2.5 metre headboard



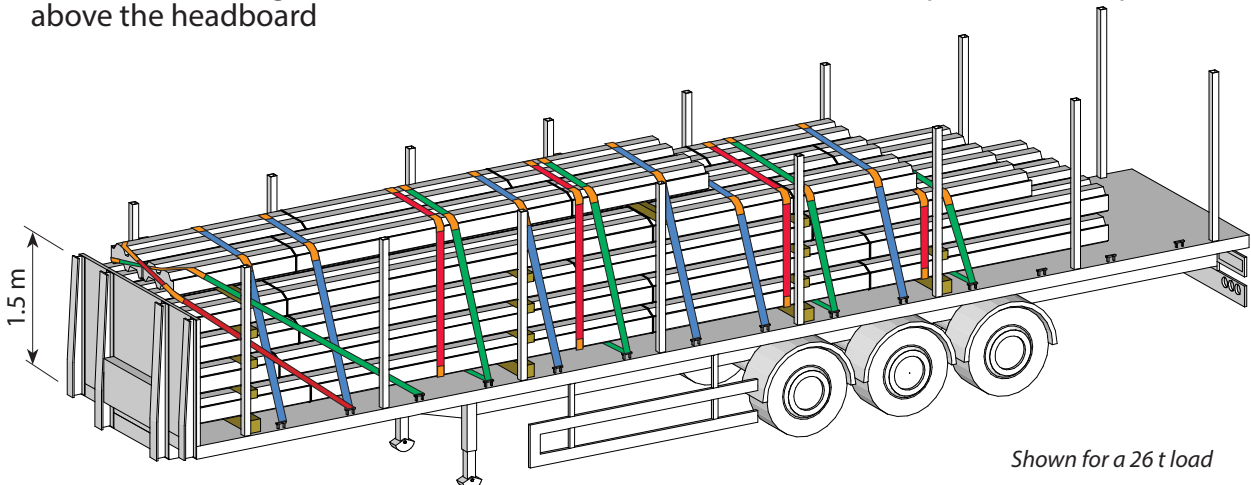
Shown for a 26 t load

4.2 Product blocked against 2.5 metre headboard posts



Shown for a 26 t load

4.3 Product blocked against a 1.5 metre headboard with cross-over straps around the product above the headboard



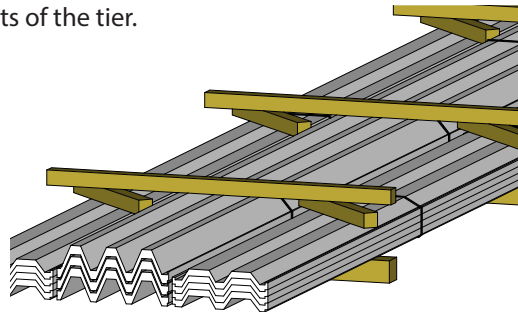
Shown for a 26 t load

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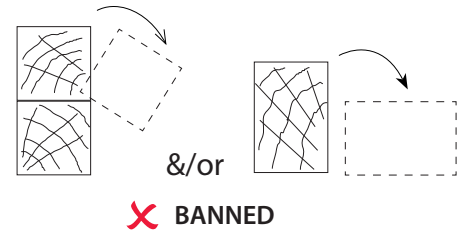
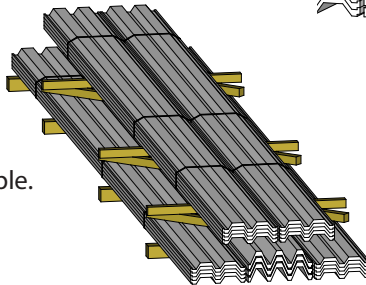
5. Uneven tiers

- ✓ Create grillage to suit the different product heights of the tier.
- ✓ Dunnage must span the width of the bundle.
- ✓ Ensure dunnage is not double stacked in line.
- ✓ Place smaller dunnage at an angle to avoid the upper dunnage sliding off.



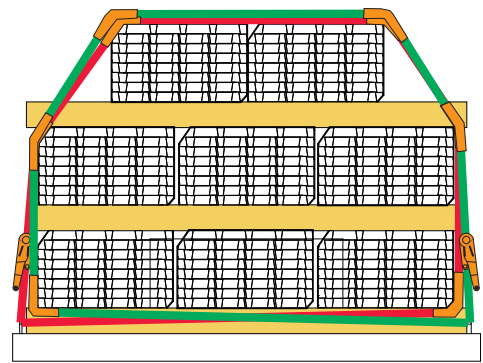
Note:
Recommended
dunnage size is
75 mm x 75 mm.

- ✓ Load next tier onto the level dunnage.
- ✓ Ensure product is stable.



6. Opposing loop webbing straps

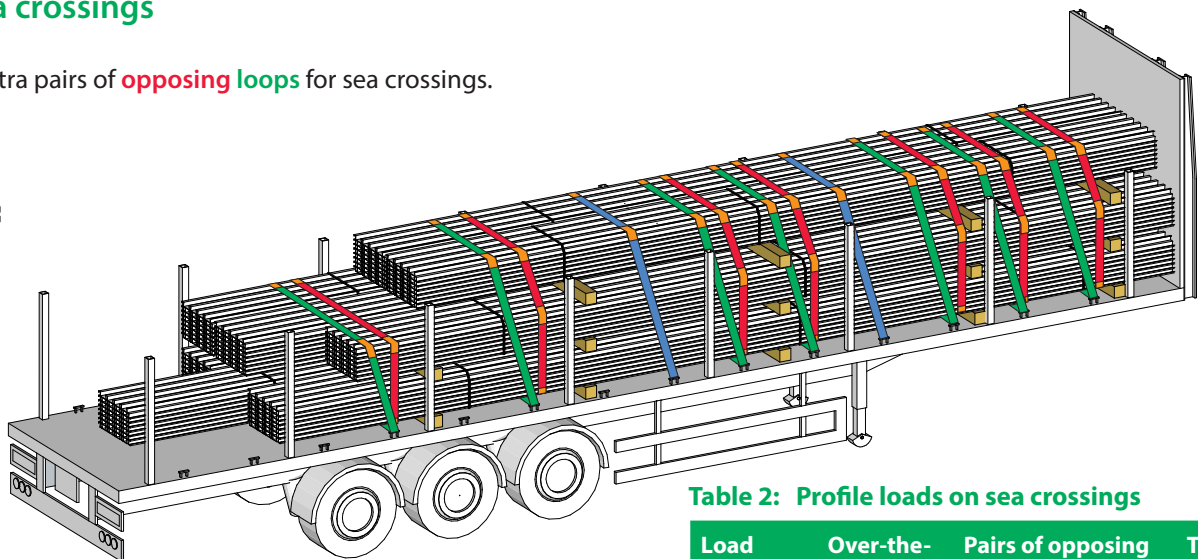
- ✓ Wrapped around all product.
- ✓ Edge protection must be used on sharp corners.
- ✓ **Opposing loops** must be applied as a pair.
- ✗ Not to be used as a substitute for over-the-top restraints.



Opposing loop webbing straps with tensioners

7. Sea crossings

Add extra pairs of **opposing loops** for sea crossings.



Shown for a 16 t load against a 10 t headboard

Table 2: Profile loads on sea crossings

Load weight	Over-the-tops	Pairs of opposing loops	Total straps
0 - 15 t	2 +	5	= 12
15 - 20 t	2 +	7	= 16
20 - 26 t	2 +	8	= 18

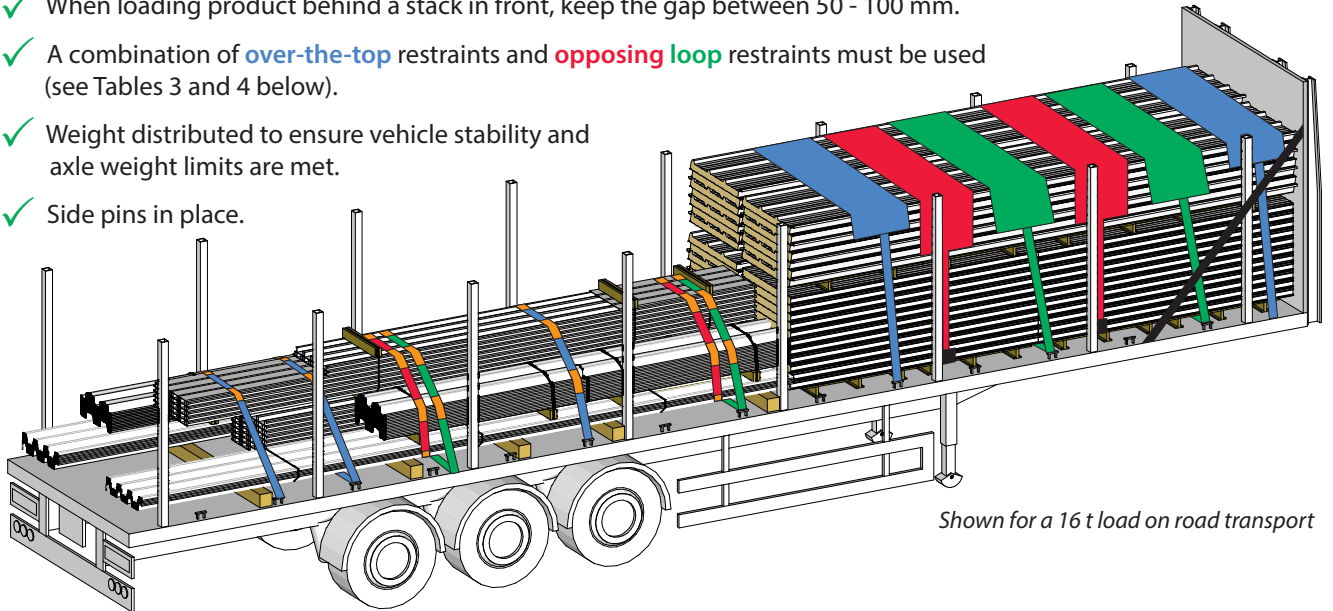
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8. Mixed loads

8.1 General considerations

- ✓ Load against the headboard.
- ✓ When loading product behind a stack in front, keep the gap between 50 - 100 mm.
- ✓ A combination of **over-the-top** restraints and **opposing loop** restraints must be used (see Tables 3 and 4 below).
- ✓ Weight distributed to ensure vehicle stability and axle weight limits are met.
- ✓ Side pins in place.



Shown for a 16 t load on road transport

Table 3: Minimum restraints required for road transport mixed loads

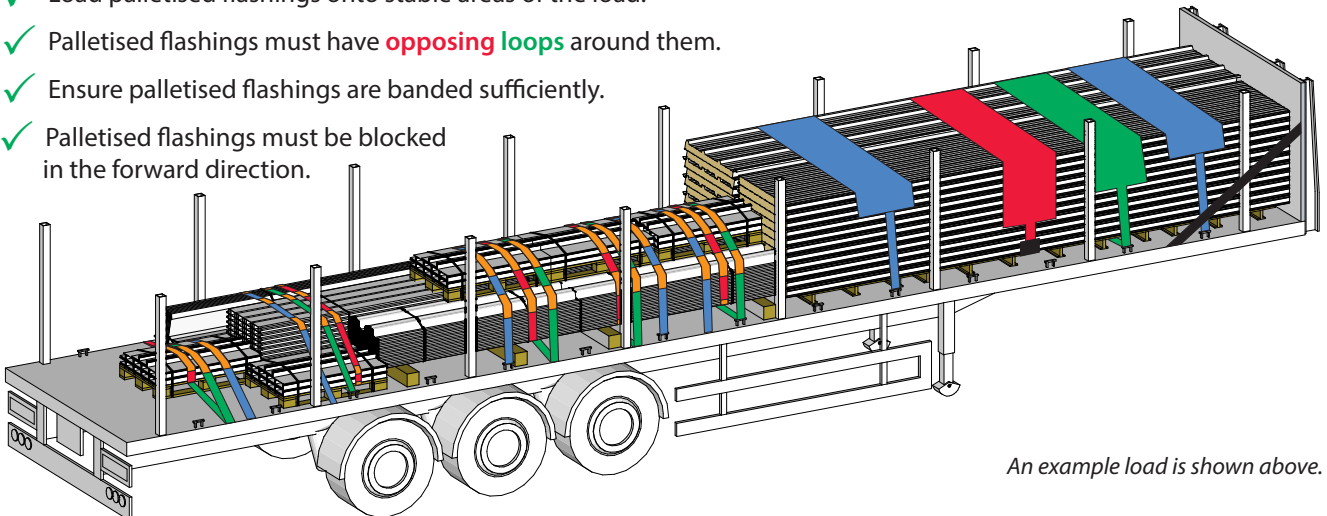
Load weight	Over-the-tops	Pairs of opposing loops	Total
0 - 15 t	3	+	3 = 9
15 - 20 t	5	+	3 = 11
20 - 26 t	6	+	4 = 14

Table 4: Minimum restraints required for sea transport mixed loads

Load weight	Over-the-tops	Pairs of opposing loops	Total straps
0 - 15 t	2	+	5 = 12
15 - 20 t	2	+	7 = 16
20 - 26 t	2	+	8 = 18

8.2 Palletised components

- ✓ Load palletised flashings onto stable areas of the load.
- ✓ Palletised flashings must have **opposing loops** around them.
- ✓ Ensure palletised flashings are banded sufficiently.
- ✓ Palletised flashings must be blocked in the forward direction.



An example load is shown above.

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