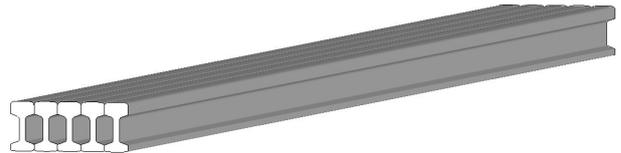


### 1. This guideline applies to:

- Bullhead rail sections transported by road.
- Non-banded but loaded in either packs of 3 or 5 or as individual rails across the trailer.



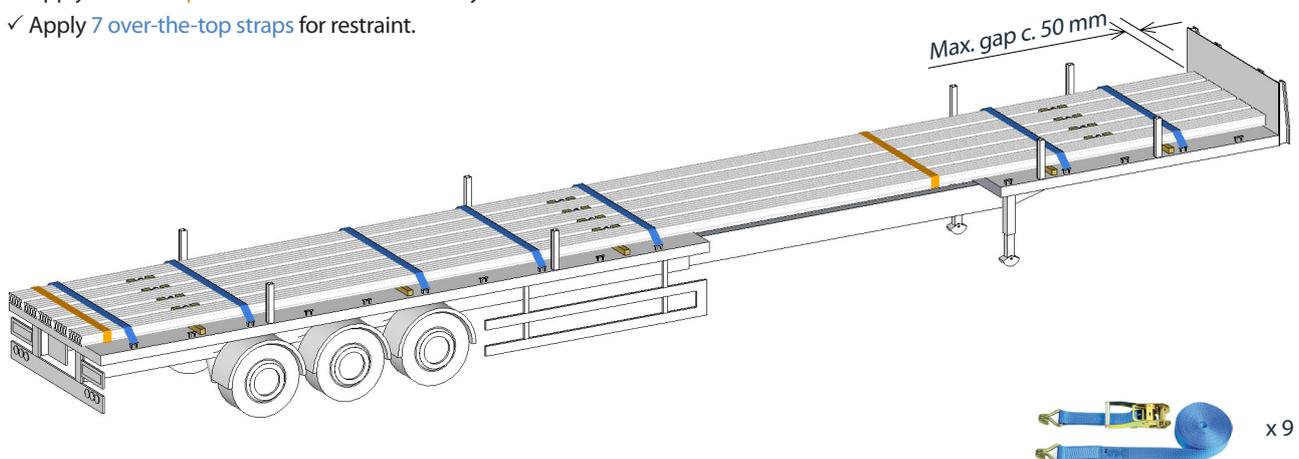
The friction factor for this product on timber dunnage, determined as per EN 12195-1:2010 Annex B.1.2, is  $\mu=0.56$ .

### 2. Equipment requirements

- Trailer headboards must cover the height of the load, and be capable of withstanding a force of 100 kN i.e. approximately 10 tonnes (see Section 6.1).
- Side pins must be fitted to the trailers for loading and unloading safety (see Section 6.2).
- Base dunnage must be a single layer of square section timber at least 75 x 75 mm. A minimum of 4 base bearers are required on standard trailers, and a minimum of 5 are required on extended trailers.
- When rails are loaded in packs of 3 or 5 for customer off-loading purposes, wooden spacers are required between the packs to ensure rails cannot topple sideways (see Section 4).
- All restraints must be webbing straps compliant with EN 12195-2, with a minimum lashing capacity of 2000 daN.

### 3. Overview of restraint system for bullhead rails

- ✓ Load to the trailer headboard - maximum gap approximately 50 mm.
- ✓ Load in a single row across the trailer.
- ✓ Use full width base timbers.
- ✓ Apply 2 belt straps around the load for stability.
- ✓ Apply 7 over-the-top straps for restraint.

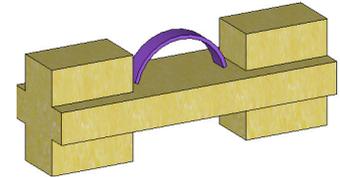
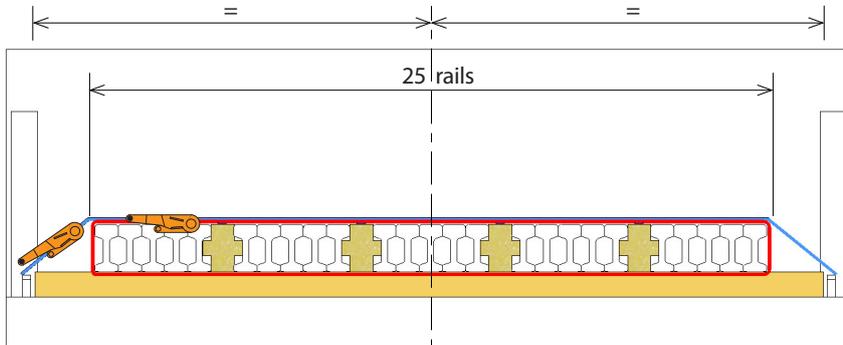


This Load Restraint Guideline has been designed to meet the forces for road and sea transport as stated in EN 12195-1:2010 and VDI 2700.

#### 4. Load build options

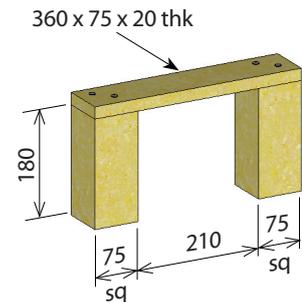
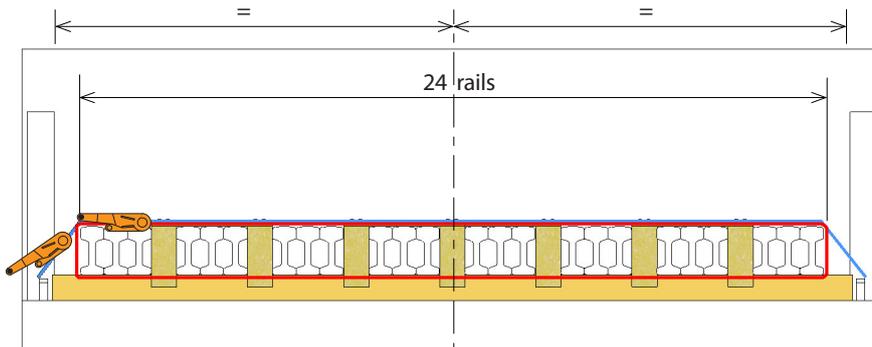
Certain customers may require Bullhead rail split into packs of 5 or 3 to facilitate safe off-loading. Any gaps between sets of rails must be blocked securely with timbers to ensure that the load is stable. Two or three sets of spacers down the length of the load will provide sufficient spacing to allow off-loading.

##### 4.1 Sets of 5 rails



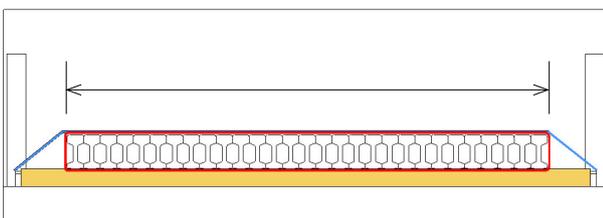
Bespoke wooden spacers provided by London Underground Ltd.

##### 4.2 Sets of 3 rails

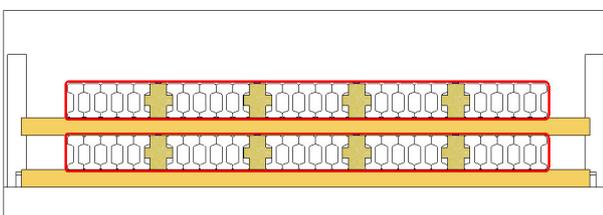


Suggested spacer for 3 wide packs.

##### 4.2 Load build do's and don'ts



- ✓ Bullhead rails to be loaded in a single row.
- ✓ Load centrally on the trailer bed.
- ✓ Rails tightly packed together with no gaps.
- ✓ Fit 2 belt straps around the rails.
- ✓ Use full width base timbers.

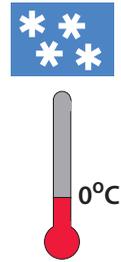


- × Do NOT load Bullhead rails 2 high - the bottom layer is too unstable to support the top layer.



## 5. Winter weather advisory periods

During severe winter weather advisory periods when the air temperature is below 0°C and there is a risk of frost, ice or snow present in the load, additional load restraint precautions must be taken by applying either Option 1 or Option 2 below.

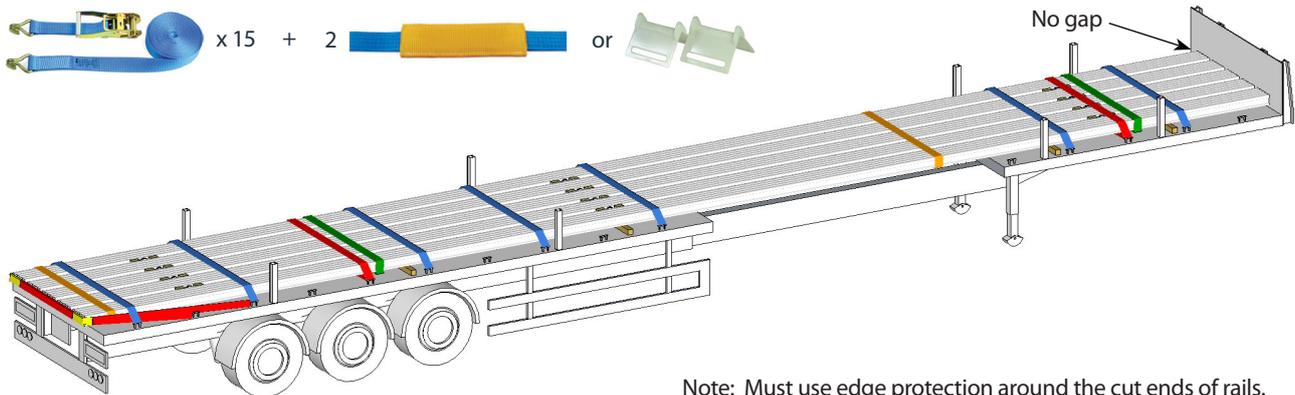


Note: Trailer decks should be cleared of snow and ice before loading, and timbers should be kept in a dry location wherever possible. In winter conditions rails must be loaded tight to the headboard.

### 5.1 Option 1 - with additional restraints

In order to prevent the rails from sliding sideways and rearwards when there is a risk of frost or ice in the load, the following additional restraints must be used when anti-slip matting is not applied throughout the load:

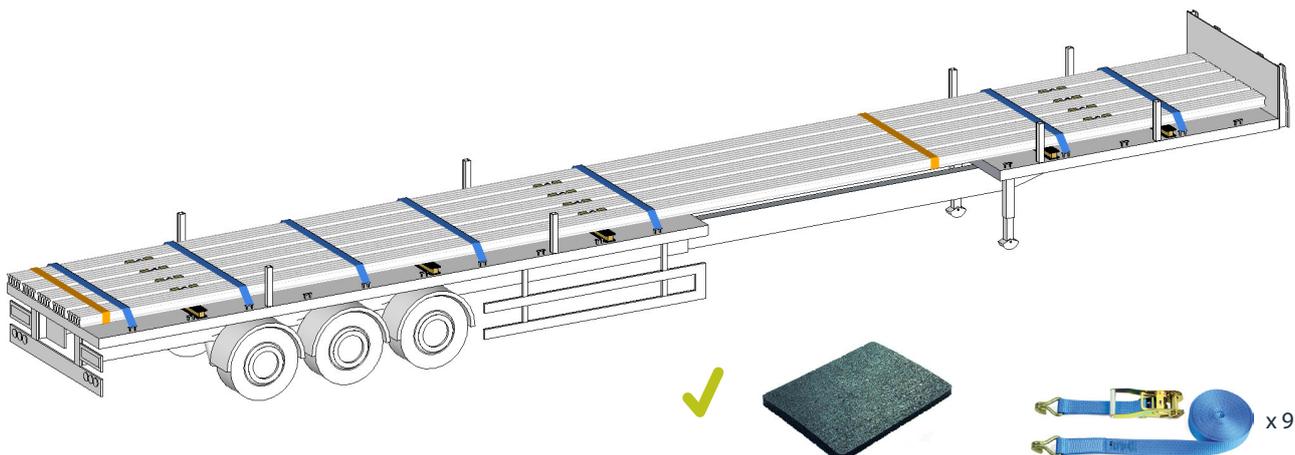
- 2 pairs of **opposing loops** (applied to the top row of rails) to prevent sideways movement.
- 2 straps **around the rear** of the load to prevent rails sliding off the trailer rearwards.
- All other load build and restraint requirements as per Sections 3 and 4.



Note: Must use edge protection around the cut ends of rails.

### 5.2 Option 2 - with anti-slip matting

- In order to minimise the effect of frost or ice forming in the load, anti-slip matting can be applied to both sides of the timber dunnage.
- When anti-slip matting is applied throughout the load, the standard number of lashings can be applied as shown in Section 3.
- All other load build requirements to apply as shown in Section 4.



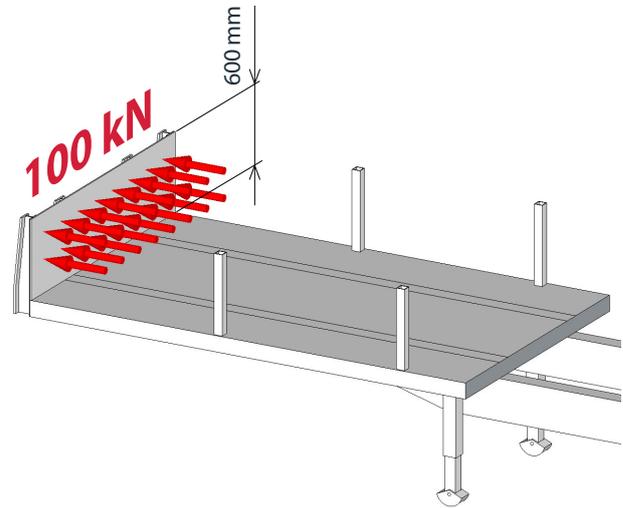
## 6. Trailer requirements

### 6.1 Headboard

#### Strength

This Load Restraint Guideline relies on the trailer headboard to provide a significant proportion of the required load restraint forces in the forwards direction. Under emergency braking, the headboard must be capable of withstanding the following forces:

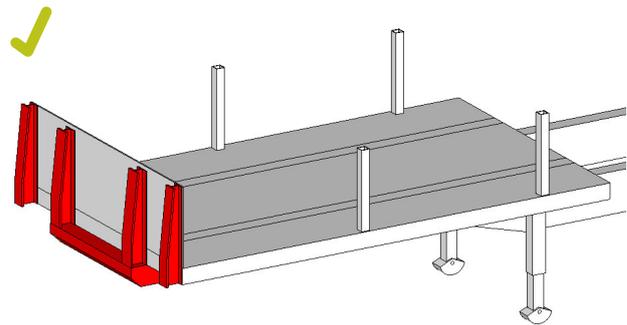
- 100 kN evenly distributed across the full width of the headboard, up to a height of 600 mm;
- A maximum bending moment of 30 kNm.



#### Structure

As a guide, the above forces would require a headboard consisting of the following:

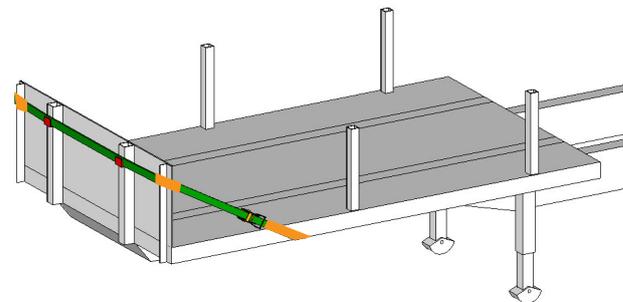
- 4 substantial vertical members;
- Adequately welded to strengthened chassis frame;
- Steel plate facing (not wooden).



Trailers manufactured to EN 12642 code XL will have headboards of sufficient strength to comply with this Load Restraint Guideline.



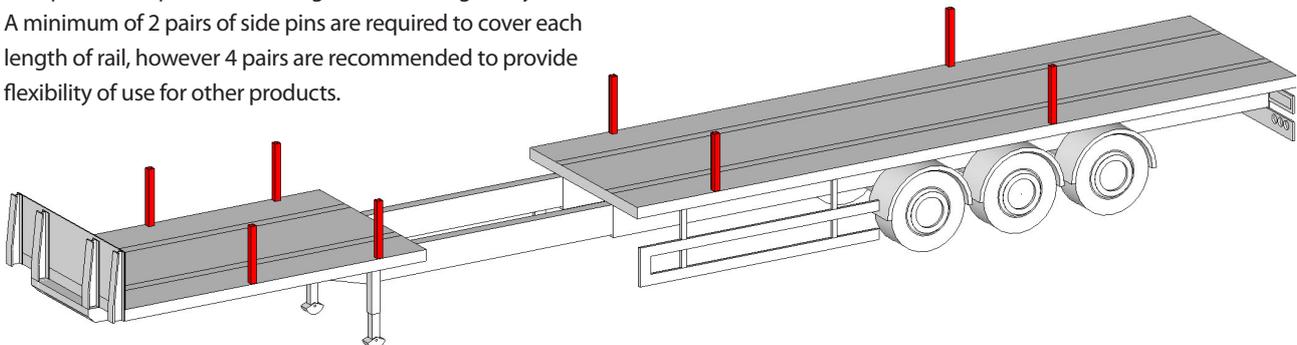
Less substantial headboards, or headboards with unknown load bearing capacity must be lashed back with webbing straps (or chains) to provide the necessary strength.



### 6.2 Side pins

Side pins are required for loading and unloading safety.

A minimum of 2 pairs of side pins are required to cover each length of rail, however 4 pairs are recommended to provide flexibility of use for other products.



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