

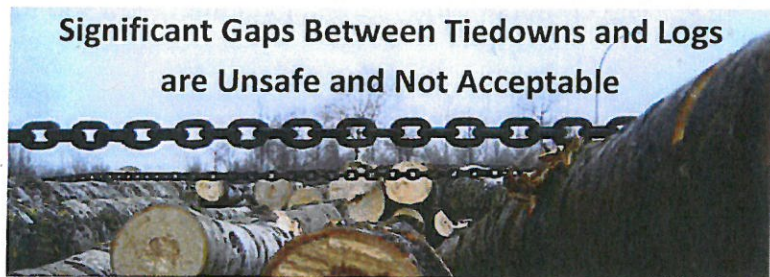
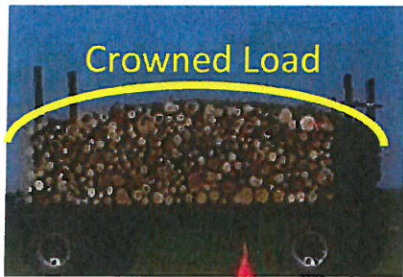
# Securement Guide for Transporting Shortwood

This guide covers the transportation of shortwood logs (up to 16 feet) using crib, bunk, and frame (loaded crosswise) style vehicles. **It does not apply to longwood, stumps, logs that are unitized by banding, or other commodities.**

## **Best Practices for All Vehicle Types<sup>1</sup>**

### **Crowning and Securement:**

Load securement testing has proven that crowning a load properly has significant safety benefits. A load that is crowned properly allows the tiedown to “unitize” the load. This distributes the forces evenly throughout the stack and prevents the top logs from shifting independently.



### **Auto-Tensioners:**

For logs that are loaded crosswise and secured with two longitudinal tiedowns, any settling of the load will reduce tension on the stack. Trucks and/or trailers may therefore be equipped with auto-tensioners (air binders) that are able to maintain a constant tension on the load. These devices often use systems with air chambers or air bags that can compensate for load settling.



Air Chamber Auto-Tensioner

### **Anti-Slip Devices:**

Since the lowest friction point is generally between the logs and the frame or bunk, trailers should be equipped with ridges, square stock, or angle iron on the frame or bunk to help prevent the load from shifting.



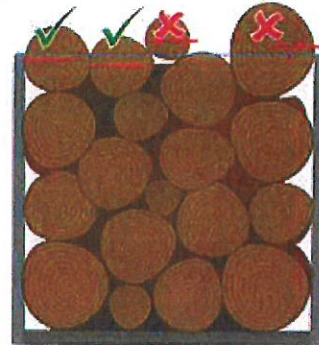
<sup>1</sup> These best practices are encouraged, but are not specifically required by Wisconsin laws or federal regulations.

## Transporting Logs Lengthwise Using Crib-Type Vehicles

### Using a Crib-Type Truck or Trailer:

No tiedowns are required if the following criteria are met:

- Stacks are cradled in a bunk and contained by stakes.
- The trailer is equipped with front and rear structures which prevent movement.
- Spacing between stacks does not allow movement that would cause a log to be contained by less than two stakes.
- Logs are solidly packed, and the outer logs must be in contact with, and resting solidly against, the bunks, bolsters, stakes, or standards.
- Each outside log on the side of a stack touches or extends beyond at least two stakes, bunks, bolsters, or standards.
- The centers of the highest logs are below the top of each stake or structure.



**Typical Crib-Type Trailer with Stakes and Front / Rear Structures**

### Stacks Must be Relatively Level: (Crib or Bunk Type Trailers)

If the stacks are not relatively level, then a tiedown must be used on the taller stack(s).



## Transporting Logs Lengthwise Using Bunk-Type Vehicles

### No Rear Structure:

If there is no rear structure, one tiedown is required on the rearmost stack about midway between the stakes (Option 1). A diagonal tiedown is acceptable even if it passes over the side of the stake. (Option 2).



Option 1: Tiedown Centered Over Stack



Option 2 : Tiedown diagonal across load.

### No Front Structure:

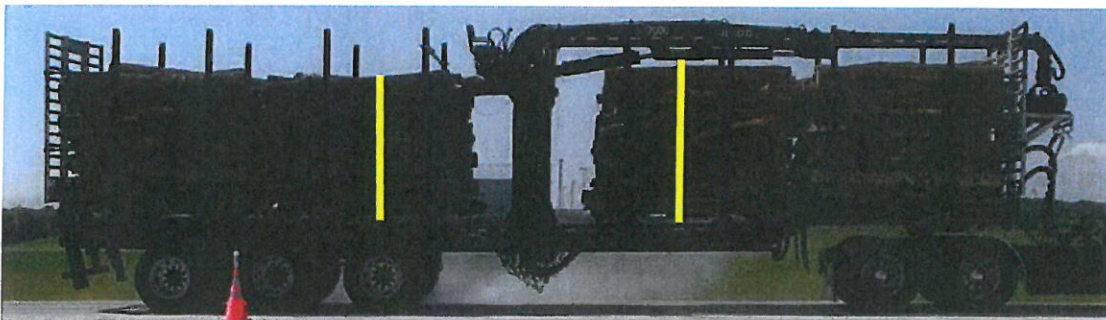
If there is no front structure on the trailer, two tiedowns are required on the front stack.



Two Tiedowns Required Over Front Stack for Driver Protection

### Space Between Stacks:

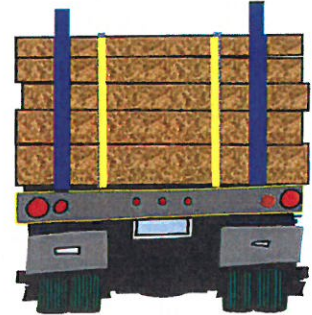
If there is a space between stacks such that a log could slide forward or rearward and not have contact with at least two stakes, bunks, bolsters, or standards, one tiedown is required on that stack about midway between the stakes or diagonal across load.



## Transporting Shortwood Logs Crosswise

### General Requirements:

- Two tiedowns are required to secure one stack of shortwood loaded crosswise.
- Tiedowns are positioned approximately 1/3 and 2/3 of the length of the logs.
- Load should be crowned so that tiedowns contact logs positioned along the top of the stacks.



### Vehicles Exceeding 33 feet in Length:

- Vehicles over 33 feet must be equipped with center stakes or comparable devices to divide it into sections of equal length.
- Each tiedown must secure the highest log on each side of the center stake and be fastened below these logs
- Tiedown options:
  - Fixed at each end and tensioned in the middle.
  - Fixed in middle and tensioned from each end.
  - Tiedown may pass through a “pulley or equivalent device” in the middle and be tensioned from one end.

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***When a “pulley or equivalent device” is not used, the tiedown will bind at the center and not allow for uniform tensioning. It may therefore be necessary to tension the tiedowns from both ends.***

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