



Load Securement Revisited

Background

On September 27, 2002, the Federal Motor Carrier Safety Administration (FMCSA) published new cargo securement rules. Motor carriers operating in interstate commerce must comply with the new requirements beginning January 1, 2004. The new rules are based on the North American Cargo Securement Standard Model Regulations, reflecting the results of a multi-year research program to evaluate U.S. cargo securement regulations. The new rules require motor carriers to change the way they use cargo securement devices to prevent articles from shifting on or within, or falling from commercial motor vehicles. The changes may require motor carriers to increase the number of tiedowns used to secure certain types of cargo. However, the rule generally does not prohibit the use of tiedowns or cargo securement devices currently in use. The intent of the new requirements is to reduce the number of accidents caused by cargo shifting on or within, or falling from, commercial motor vehicles operating in interstate commerce.

Applicability of the New Rules

The new cargo securement rules apply to all cargo-carrying commercial motor vehicles (as defined in 49 CFR 390.5) operated in interstate commerce. This includes all types of articles of cargo.

Performance Criteria

FMCSA has adopted new performance requirements concerning deceleration in the forward direction, and acceleration in the rearward and lateral directions, those cargo securement systems must withstand. Deceleration is the rate at which the speed of the vehicle decreases when the brakes are applied, and acceleration is the rate at which the speed of the vehicle increases in the lateral direction or sideways (while the vehicle is turning), or in the rearward direction (when the vehicle is being driven in reverse and makes contact with a loading dock). Acceleration and deceleration values are commonly reported as a proportion of the acceleration due to gravity (g). This acceleration is about 9.8 meters/second/second (32.2 feet/second/second), which means that the velocity of an object dropped from a high elevation increases by approximately 9.8 meters/second (32.2 feet/second) each second it falls. FMCSA requires that cargo securement systems be capable of withstanding the forces associated with following three deceleration/accelerations, applied separately:

1. 0.8 g deceleration in the forward direction;
2. 0.5 g acceleration in the rearward direction; and
3. 0.5 g acceleration in a lateral direction.



The new rules explicitly state that cargo immobilized or secured in accordance with the general securement rules, or the commodity-specific rules, are considered to meet the performance criteria.

Requirements for Securement Devices

The new rules require that all devices and systems used to secure cargo to or within a vehicle must be capable of meeting the performance criteria. All vehicle structures, systems, parts and components used to secure cargo must be in proper working order when used to perform that function with no damaged or weakened components that could adversely affect their performance. The cargo securement rules incorporate standards for certain types of tiedowns including steel strapping, chain, synthetic webbing, wire rope, and cordage. FMCSA has updated the rules to reference the November 15, 1999, version of the National Association of Chain Manufacturers (NACM) Welded Steel Chain Specifications. Motor carriers are not required to replace tiedown devices purchased prior to January 1, 2004.

Summary of the new cargo rules

The new cargo securement rules include general securement rules applicable to all types of articles of cargo, with certain exceptions, and commodity-specific rules covering commodities that are considered the most difficult to determine the most appropriate means of securement. Requirements concerning securement, working load limits, blocking and bracing are applicable to all commodities being transported. The commodity-specific requirements take precedence over the general rules.

General Rule

Cargo must be firmly immobilized or secured on or within a vehicle by structures of adequate strength, dunnage (loose materials used to support and protect cargo) or dunnage bags (inflatable bags intended to fill space between articles of cargo or between cargo and the wall of the vehicle), shoring bars, tiedowns or a combination of these.

Cargo Placement and Restraint

Articles of cargo that are likely to roll must be restrained by chocks, wedges, a cradle or other equivalent means to prevent rolling. The means of preventing rolling must not be capable of becoming unintentionally unfastened or loose while the vehicle is in transit. Articles of cargo placed beside each other and secured by transverse tiedowns must be:

1. Placed in direct contact with each other, or
2. Prevented from shifting towards each other while in transit.

Special Rule for Special Purpose Vehicles

Generally, the basic rules concerning the minimum number of tiedowns do not apply to a vehicle transporting one or more articles of cargo such as, fabricated

structural items (e.g., trusses, laminated floor beams etc.) which, because of their design, size, shape or weight, must be fastened by special methods. However, any article of cargo carried on that vehicle must be secured adequately to the vehicle by devices that are capable of meeting the performance requirements and the working load limit requirements.

Dressed Lumber and Similar Building Products

These rules apply to the transportation of bundles of dressed lumber, packaged lumber, and building products such as plywood, gypsum board or other materials of similar shape. Lumber or building products that are not bundled or packaged must be treated as loose items and transported in accordance with the general cargo securement rules. The term "bundle" refers to packages of lumber, building materials or similar products which are unitized for securement as a single article of cargo.

Lumber and building material dealers are required to comply with the FMCSA guidelines for securing loads being transported. The specific guidelines to follow when securing various types of loads can be found at www.fmcsa.dot.gov

When reviewing commercial vehicle loss history for the "Wood Niche" industry, failure to properly secure loads is among the highest frequency and severity type of loss occurrence. By following the FMCSA published guidelines and checking the securement of each load prior to being transported over the road, the impact of sliding/shifting loads and materials falling from vehicles can be reduced to prevent property damage and bodily injury claims.