Cargo Securement

Proper Use of Tiedowns

The new regulations require each tiedown to be attached and secured in a manner that prevents it from becoming loose, unfastening, opening or releasing while the vehicle is in transit. All tiedowns and other components of a cargo securement system used to secure loads on a trailer equipped with rub rails must be located inboard of the rub rails whenever practicable. Also, edge protection must be used whenever a tiedown would be subject to abrasion or cutting at the point where it touches an article of cargo. The edge protection must resist abrasion, cutting and crushing.

Use of Unmarked Tiedowns

The new rules do not prohibit the use of unmarked tiedown devices. Although many of the participants in the public meetings and numerous commenters to the rulemaking proposal argued the rules should include such a prohibition, FMCSA believes it is inappropriate to prohibit unmarked tiedowns at this time. However, in view of the potential safety hazards of motor carriers misidentifying unmarked tiedowns, there is a provision that unmarked welded steel chain be considered to have a working load limit equal to that of grade 30 proof coil, and other types of unmarked tiedowns be considered to have a working load limit equal to the lowest rating for that type in the table of working load limits.

Unrated and Unmarked Anchor Points

FMCSAs cargo securement rules do not require rating and marking of anchor points. While the agency encourages manufacturers to rate and mark anchor points, the new rules do not include a requirement for ratings and markings.

Front End Structures on CMVs

FMCSA revised its rules concerning front-end structures or headerboards by changing the applicability of the requirements to cover CMVs transporting cargo that is in contact with the front-end structure of the vehicle. By contrast, the old rules required certain vehicles to be equipped with front-end structures regardless of whether the devices were used as part of a cargo securement system.

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 when additional requirements are given for a commodity listed in those sections. This means all cargo securement systems must meet the general requirements, except to the extent a commodity-specific rule imposes additional requirements that prescribe in more detail the securement method to be used.

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:

Placed in direct contact with each other, or
Prevented from shifting towards each other while in transit.
Minimum Working Load Limit for Cargo Securement Devices and Systems

The aggregate working load limit of any securement system used to secure an article or group of articles against movement must be at least one-half the weight of the article or group of articles. The aggregate working load limit is the sum of: One-half the working load limit of each tiedown that goes from an anchor point on the vehicle to an attachment point on an article of cargo; and The working load limit for each tiedown that goes from an anchor point on the vehicle, through, over or around the cargo and then attaches to another anchor point on the vehicle.

Minimum Number of Tiedowns

The cargo securement system used to restrain articles against movement must meet requirements concerning the minimum number of tiedowns. This requirement is in addition to complying with rules concerning the minimum working load limit. When an article of cargo is not blocked or positioned to prevent movement in the forward direction, the number of tiedowns needed depends on the length and weight of the articles. There must be - one tiedown for articles 5 ft or less in length, and 1,100 lbs or less in weight; two tiedowns if the article is -

5 ft or less in length and more than 1,100 lbs in weight; or greater than 5 ft but less than 10 ft, regardless of weight. In the following example, one tiedown is required because the article of cargo is 5 ft in length and does not exceed 1,100 lbs. If the article of cargo were greater than 5 ft in length but less than 10 ft, two tiedowns would be needed regardless of the weight. When an article of cargo is not blocked or positioned to prevent movement in the forward direction, and the item is longer than 10 ft in length, then it must be secured by two tiedowns for the first 10 ft of length, and one additional tiedown for every 10 ft of length, or fraction thereof, beyond the first 10 ft. An example of this is provided below. If an article is blocked, braced or immobilized to prevent movement in the forward direction by a headerboard, bulkhead, other articles that are adequately secured, or other appropriate means, it must be secured by at least one tiedown for every 10 ft of article length, or fraction thereof.

393.116 - Logs

The rules for the transportation of logs are applicable to the transportation of almost all logs with the following exceptions:

Logs that are unitized by banding or other comparable means may be transported in accordance with the general cargo securement rules.
Loads that consist of no more than four processed logs may be transported in accordance with the general cargo securement rules.
Firewood, stumps, log debris and other such short logs must be transported in a vehicle or container enclosed on both sides, front, and rear and of adequate strength to contain them. Longer logs may also be transported in an enclosed vehicle or container.

393.118 - Dressed Lumber and Similar Building Products
The rules in this section apply to the transportation of bundles of dressed lumber, packaged lumber, 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. For the purpose of this section, the term " bundle " refers to packages of lumber, building materials or similar products which are unitized for securement as a single article of cargo.

393.120 - Metal Coils
The rules in this section apply to the transportation of one or more metal coils which, individually or grouped together, weigh 2,268 kg (5,000 lbs) or more. Shipments of metal coils that weigh less than 2,268 kg (5,000 lbs) may be secured in accordance with the general cargo securement rules.

393.122 - Paper Rolls
The rules for securing paper rolls are applicable to shipments of paper rolls which, individually or together, weigh 2,268 kg (5,000 lbs) or more. Shipments of paper rolls that weigh less than 2,268 kg (5,000 lbs), and paper rolls that are unitized on a pallet, may either be secured in accordance with the rules in this section or the general cargo securement rules.

393.124 - Concrete Pipe
The rules in this section apply to the transportation of concrete pipe on flatbed trailers and vehicles and lowboy trailers. Concrete pipe that is bundled tightly together into a single rigid article with no tendency to roll, and concrete pipe loaded in a sided vehicle or container must be secured in accordance with the general rules.

393.126 - Intermodal Containers
The requirements for intermodal containers cover the transportation of these containers on container chassis and other types of vehicles. Intermodal containers are freight containers designed and constructed to permit them to be used interchangeably in two or more modes of transportation. Cargo contained within intermodal containers must be secured in accordance with the general cargo securement rules or, if applicable, the commodity-specific rules.

393.128 - Automobiles, Light Trucks and Vans
This portion of the new standards applies to the transportation of automobiles, light trucks, and vans which individually weight 4,536 kg (10,000 lbs) or less. Vehicles which individually are heavier than 4,536 kg (10,000 lbs) must be secured in the same manner as heavy vehicles, equipment and machinery (see the rules under /393.126).

393.130 - Heavy Vehicles, Equipment and Machinery
These requirements are applicable to the transportation of heavy vehicles, equipment and machinery which operate on wheels or tracks, such as front end loaders, bulldozers, tractors and power shovels and which individually weigh 4,536 kg (10,000 lbs) or more. Vehicles, equipment and machinery which is lighter than 4,536 kg (10,000 lbs) may be secured in accordance with these rules, the rules for automobiles, light trucks and vans, or the general freight requirements.

393.132 - Flattened or Crushed Vehicles
The transportation of vehicles such as automobiles, light trucks and vans that have been flattened or crushed is covered by these requirements. The transportation of automobiles that are flattened or crushed in a crash or accident, as opposed to being intentionally flattened or crushed in preparation for transportation to recycling facilities, is not subject to these requirements. However, vehicles damaged in a crash or accident are subject to the general cargo securement requirements.

393.134 - Roll-on/Roll-Off or Hook-lift Containers
These rules apply to the transportation of roll-on/roll-off or hook lift containers. A hook-lift container is defined in 49 CFR 393.5 as a specialized container, primarily used to contain and transport materials in the waste, recycling, construction/demolition and scrap industries, which is used in conjunction with specialized vehicles in which the container is loaded and unloaded onto a tilt frame body by an articulating hook-arm. Section 393.134 is not, however, applicable to the operation of hoist-type equipment (or hoist equipment) as described in American National Standards Institute (ANSI) publication ANSI 2245.1. Hoist-type equipment should be considered separate and distinct from roll-on/roll-off equipment and, therefore, not subject to 393.134. Containers transported on hoist-type equipment must be secured in accordance with the general securement rules.

393.136 - Large Boulders
The rules in this section are applicable to the transportation of any large piece of natural, irregularly shaped rock weighing in excess of 5,000 kg (11,000 lbs) or with a volume in excess of 2 cubic-meters on an open vehicle, or in a vehicle whose sides are not designed and rated to contain such cargo. Pieces of rock weighing more than 100 kg (220 lbs), but less than 5,000 kg (11,000 lbs) must be secured, either in accordance with this section, or in accordance with the general cargo securement rules, including: (1) rock contained within a vehicle which is designed to carry such cargo; or (2) secured individually by tiedowns, provided each piece can be stabilized and adequately secured. Rock which has been formed or cut to a shape and which provides a stable base for securement must also be secured, either in accordance with the provisions of this section or in accordance with the general securement rules.