

# Cargo Security

# 2

## Statement of Limitation

This booklet is intended as a guide only and as such has been written as a plain language summary to help you understand some of the laws in British Columbia that affect cargo security. This guide covers laws in force as of March 2005. You should refer to the *Motor Vehicle Act* (MVA), the *Motor Vehicle Act Regulations* (MVAR) and *National Safety Code Standard 10, Cargo Securement* (the standard) for a full statement of the law. In the event of a conflict between this booklet and any provision of the MVA, MVAR or the standard, the MVA, MVAR and the standard shall apply. The MVA, MVAR and the standard are subject to change without notice.

## Contents

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Introduction .....	1
General Cargo Securement Requirements .....	1
Inspecting Cargo .....	3
General Requirements for Tiedowns .....	3
Number of Tiedowns .....	4
Strength of Tiedowns .....	6
Determining Working Load Limit .....	7
Grades of Chain .....	7
Chain Connector Links .....	8
Wire Rope .....	9
Webbing .....	10
Bagged Products .....	11
Aggregate Material .....	11
Front End Structures .....	13
Strength .....	13
Height .....	14
Width .....	14
Penetration Resistance .....	14
Marking/Identification .....	14
Hanging Meat .....	15
Grinding Balls .....	13
Logs .....	15
Vehicles Transporting Logs or Poles .....	15
Log Configuration .....	16
Short Logs .....	16
Long Logs .....	16
Inspecting Log Loads .....	17
Building Products .....	17
Metal Coils .....	19
Paper Rolls .....	20
Concrete Pipe .....	20
Intermodal Containers .....	21
Vehicles as Cargo .....	21
Roll-on/roll-off and Hook Lift Containers .....	22
Boulders .....	23
Baggage and Cargo on Buses .....	23

## Introduction

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The Motor Vehicle Act Regulations (MVAR) make it an offence to operate a vehicle unless its cargo is adequately secured. The MVAR specify requirements for vehicles transporting logs or poles, covers for loose loads, affixing and marking front end structures and carrying luggage in buses. The MVAR also adopt the cargo securement requirements outlined in National Safety Code Standard 10 (the standard) as BC law. The standard outlines general securement requirements that apply to all types of cargo and requirements for certain commodities. Unless otherwise specified, the general cargo securement requirements apply in addition to the commodity specific requirements.

Following these cargo security requirements should ensure that cargo remains on a vehicle, without shifting, when a driver brakes suddenly or changes direction quickly to avoid an incident.

The information in this pamphlet is based on the requirements outlined in Division 35 of the MVAR and the standard. Carriers and drivers should refer to the standard for further information on both the general and cargo specific requirements. Copies of both the standard and the MVAR can be obtained through the Commercial Vehicle Safety and Enforcement Branch website at [www.th.gov.bc.ca/cvse](http://www.th.gov.bc.ca/cvse).

## Application

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The MVAR and standard apply to all vehicles carrying cargo on highways, regardless of the vehicle's gross vehicle weight. The requirements do not apply to:

- vehicles on roads that are not highways, or
- vehicles crossing highways on highway crossing permits.

## General Cargo Securement Requirements

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All cargo on or within a vehicle must be secured so that it cannot leak, spill, blow off, fall from, fall through or otherwise be dislodged from a vehicle. Cargo must also be secured so that it cannot shift enough to affect the maneuverability or stability of a vehicle. Cargo means all articles or materials carried by a vehicle, including those used in the operation of the vehicle.

The chosen cargo securement system must be appropriate for the cargo's size, shape, strength and characteristics. The securement system may include the following components:

- vehicle structure
- blocking and bracing equipment, and / or
- securing devices, such as tiedowns.

The securement system must be able to withstand the following forces:

- forward force of 80% of cargo weight
- rearward force of 50% of cargo weight
- sideways force of 50% of cargo weight, and
- upwards force of 20% of cargo weight.

The load on each component of the securement system must not exceed the working load limit of the component. Components of a cargo securement system must not be damaged, cracked, cut or weakened. Components must be in proper working order and fit for the purpose for which they are used.

## Inspecting Cargo

Under section 3 of the standard, drivers must inspect vehicles before driving to:

- confirm that equipment used in the vehicle's operation is secured
- ensure that cargo does not interfere with the safe operation of the vehicle
- ensure that cargo does not interfere with exiting the vehicle, and
- make any necessary adjustments to the cargo and cargo securement system.

A driver must re-inspect the cargo securement system within 80 km from the point where the cargo was loaded and on a regular basis during the trip at the earliest of:

- a change in duty status of the driver
- 3 hours of driving, or
- 240 km of driving

since the last inspection.

Drivers must find safe locations to pull off the highway and inspect cargo. Drivers must record cargo securement inspections on their daily logs.

A driver need not inspect cargo if the cargo is sealed and the driver has been ordered not to inspect it, or if the cargo is inaccessible.

## General Requirements for Tiedowns

Except for steel strapping, tiedowns must be designed, constructed and maintained so that a driver can tighten them. Tiedowns must be taut and must not slip, loosen, unfasten, open or release while a vehicle is in operation.

Edge protectors must be used where a tiedown could be cut or subject to abrasion where it contacts cargo. Wherever practical, tiedowns should be located inboard of rub rails.

One long chain could be used as two tiedowns, provided that each tiedown has an independent tensioning device so that the failure of one tiedown application does not result in failure of both.

Tiedowns exhibiting any of the following must not be used for cargo securement:

- chain containing cracked welds or links
- chain containing bent, twisted, stretched or collapsed links
- chain links weakened by gouges, nicks or pits
- chain incorrectly repaired
- chain links obviously worn or showing other visible evidence of loss of strength
- knots in any portion of chain, wire rope or webbing
- spread or disturbed grabhooks
- cuts, nicks or splits in nylon webbing
- wire cable with missing strands or wraps, or
- an anchor point which is weakened or shows loss of strength due to cracks, breaks or distortion.

## Number of Tiedowns

The table on the following page illustrates the minimum number of tiedowns required if an article of cargo on or within a vehicle is not prevented from forward movement by a front end structure, a tiedown, other cargo or another device, such as a drop on a step deck trailer.

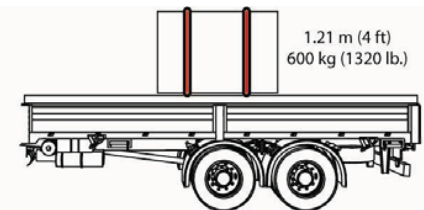
When cargo is prevented from forward movement the minimum number of tiedowns required is one tiedown for every 3.04 m (10 ft) of length or part thereof.

Machinery or fabricated structural items that require special methods of securement because of their size, design, shape or weight are exempted from these minimum tiedown requirements.

Article Description	Minimum Number of Tiedowns Required
1.52 m (5 ft) or shorter and 500 kg (1,100 lb) or lighter	1
1.52 m (5 ft) or shorter and over 500 kg (1,100 lb)	2
More than 1.52 m (5 ft) but 3.04 m or less	2
Longer than 3.04 m (10 ft)	2 + 1 tiedown for every additional 3.04 m (10 ft) or part thereof

### EXAMPLE 1

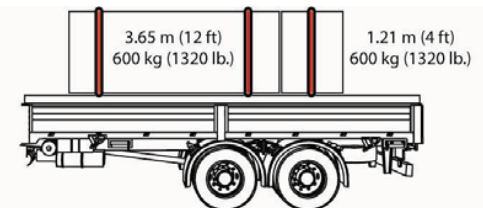
A 1.21 m long article weighing 600 kg on a flat deck.



As the article is not prevented from forward movement and it weighs more than 500 kg, two tiedowns are required. If practical, the tiedowns should be equally spaced along the article.

### EXAMPLE 2

Two articles arranged on a flat deck. The first article is butted against the vehicle's bulkhead.



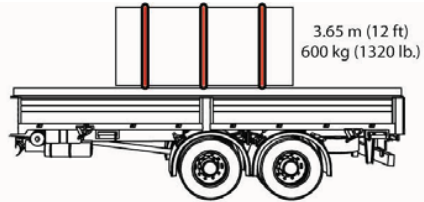
As it is prevented from forward movement by the bulkhead, the first article requires only two tiedowns. Since the second article is butted against the article in front, it requires only one tiedown.

## Strength of Tiedowns

If tiedowns are used to secure cargo, the aggregate working load limit of the tiedowns must be at least 50% of the weight of the cargo. The aggregate working load limit is calculated by totaling ½ of the working load limit for each end section of a tiedown that is attached to an anchor point.

### EXAMPLE 3

A 3.65 m long article weighing 600 kg on a flat deck



The aggregate working load limit of the tiedowns must be no less than 300 kg (50% of 600 kg). In accordance with the table on the previous page, a 3.65 m long article that is not prevented from forward movement requires three tiedowns. Therefore, each tiedown must have a working load limit of not less than 100 kg (300 kg ÷ 3).

If the only available tiedowns have a working load limit of 50 kg, then six tiedowns must be used.

However, if tiedowns rated at a working load limit of 200 kg were available, three tiedowns must still be used, since the standard stipulates the minimum number required as well as the minimum strength.

## Determining Working Load Limit

The working load limit of a tiedown is the lowest working load limit among the tiedown components, anchor points and associated connector or attachment mechanisms.

The working load limit of a component is determined by referring to either the numeric working load limit or grade marked on the component by the manufacturer. Where the manufacturer does not mark a tiedown, the standard includes tables of working load limits for various tiedown materials including chain, synthetic webbing, wire rope, manila rope, synthetic rope and steel strapping. Requirements for some of these materials are reproduced in the sections below.

The standard prohibits the use of unmarked tiedowns after January 1, 2010.

### GRADES OF CHAIN

The standard includes the following table of working load limits for various grades of chain.

Size	Grade 3 Proof coil	Grade 43 High test	Grade 70 Transport	Grade 80 Alloy	Grade 100 Alloy
<b>7 mm (1/4 in)</b>	590 kg (1300 lb)	1180 kg (2600 lb)	1430 kg (3150 lb)	1570 kg (3500 lb)	1950 kg (4300 lb)
<b>8 mm (5/16 in)</b>	860 kg (1900 lb)	1770 kg (3900 lb)	2130 kg (4700 lb)	2000 kg (5100 lb)	2600 kg (5700 lb)
<b>10 mm (3/8 in)</b>	1200 kg (2650 lb)	2450 kg (5400 lb)	2990 kg (6600 lb)	3200 kg (7100 lb)	4000 kg (8800 lb)
<b>11 mm (7/16 in)</b>	1590 kg (3500 lb)	3270 kg (8800 lb)	3970 kg (8750 lb)	-	-
<b>13 mm (1/2 in)</b>	2040 kg (4500 lb)	4170 kg (9200 lb)	5130 kg (11300 lb)	5400 kg (12000 lb)	6800 kg (15000 lb)
<b>16 mm (5/8 in)</b>	3130 kg (6900 lb)	5910 kg (11500 lb)	7170 kg (15800 lb)	8200 kg (18100 lb)	10300 kg (22600 lb)
<b>Chain Marks</b>	3 30 300	4 43 430	7 70 700	8 80 800	10 100 1000

## CHAIN CONNECTOR LINKS

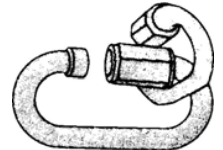


Pear shaped missing links and double clevis links are compatible with Grade 30 – short link (BBB) chains and lower grades.

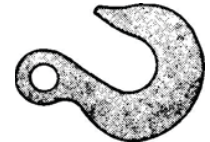
Alloy connecting links are compatible with Grade 70 chains.



Quick connectors are not suitable for any heavy duty operation.



Chain hooks are generally compatible with chain of the same size and grade (i.e., 7 mm alloy grab hooks are compatible with 7 mm alloy chain).



Slip hooks are generally slightly weaker than chain of the same size and grade.



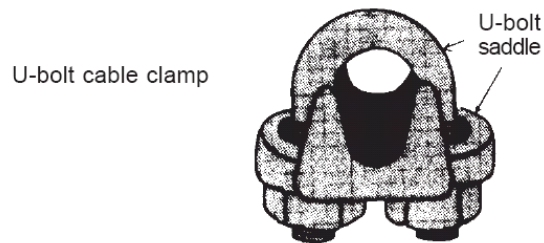
## WIRE ROPE

The following table must be used when determining the working load limit of unmarked wire rope tiedowns.

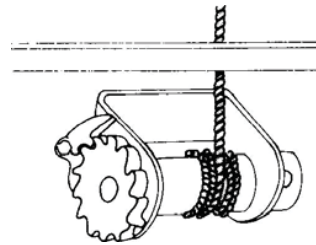
DIAMETER		WORKING LOAD LIMIT	
Millimeters	Inches	Kilograms	Pounds
7	1/4	640	1400
8	5/16	950	2100
10	3/8	1360	3000
11	7/16	1860	4100
13	1/2	2400	5300
16	5/8	3770	8300
20	3/4	4940	10900
22	7/8	7300	16100
25	1	9480	20900

Wire rope must be protected against damage, and the following precautions are required:

- Dunnage or special brackets must be used to protect wire rope where it contacts sharp edges. This also protects the cargo from damage by the rope.
- Thimbles may be used when attaching hooks, chains, clevises or similar devices to wire rope.
- If saddle and u-bolt cable clamps are utilized, the u-bolt must be attached against the dead or free end.
- At least two saddle and u-bolt clamps must be used for rope sizes up to and including 11 mm.
- At least three saddle and u-bolt clamps must be used on 13 mm wire rope.



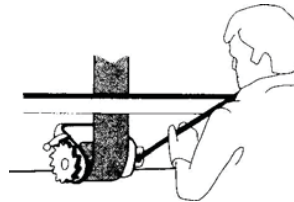
- If a winch-type tightening device is used, similar to that shown below:
  - the winch must be specifically designed for use with wire rope, or
  - the wire rope must be protected against cutting and be anchored securely to the drum if the winch is designed for webbing.



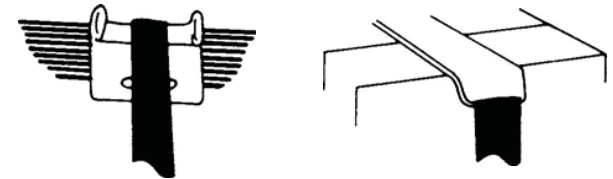
## Webbing

Synthetic webbing straps are acceptable for securing lumber, building materials and other nonabrasive cargo.

Webbing may utilize winch tightening devices mounted on the side of a vehicle in fixed positions, or an adjustable installation where the winches are mounted on a slide bar or track. An example of a winch tightening device for nylon webbing is illustrated below. Other acceptable tightening systems are also available.

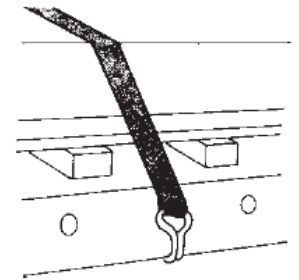


Care must be taken to ensure webbing is protected from abrasive surfaces or sharp edges by using suitable protectors. The figure below shows two types of acceptable webbing protectors.



A twist in the webbing to prevent vibration due to wind is acceptable.

As illustrated in the figure on the right, a hook end or other metal fitting permanently attached to the webbing must be used when attaching the webbing to a structural part of the vehicle.



## Bagged Products

Cement, fertilizer and many other products are packaged in bags, and then stacked on pallets for shipment. Interlocking the bags on the pallets and wedging the pallets on the trailer is not sufficient. The bags must be secured by tiedowns and dunnage (corner boards).

## Aggregate Material

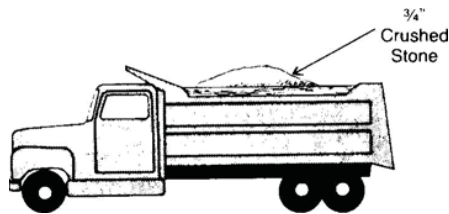
If sideboards or tiedowns are not effective methods for securing aggregate material, a cover must also be used to ensure the cargo does not escape from the vehicle.

Section 35.06 of the MVAR requires the use of a cover to secure cargo if both of the following conditions exist:

- The cargo is an aggregate material. In this case, the term “aggregate material” is not restricted to rock, gravel stone, or sand, but includes wood chips, garbage, loose paper or any collection of small articles.
- The load is likely to bounce, blow or drop from the vehicle while in transit.

#### EXAMPLE 4

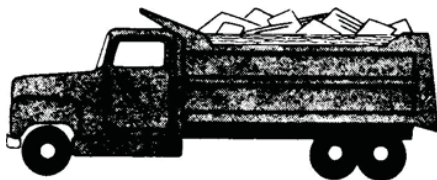
A dump truck carrying ¾” crushed stone in a 7.6 cubic metre box with sideboards. Although the load is piled such that the peak in the centre of the box is higher than the sideboards, the stone along the sides of the box is not up to the bottom of the sideboards.



Since there is no danger of stone bouncing out, a cover is not required. Debris from the ledges on the outside of the box and tailgate must be removed prior to setting out. The tailgate must close tightly against the box so that the load cannot escape through cracks.

#### EXAMPLE 5

The same truck now has a full load of paper, debris and garbage. Since it is likely that the load will be blown out of the box, a cover will be required.



## Grinding Balls

Grinding balls are typically carried on flat deck trailers fitted with sidestakes and sideboards of adequate strength fitted between the sidestakes and the grinding balls. The sideboards must extend above the height of the grinding balls. Depending upon their size, tarping may also be required to prevent the balls from bouncing off the truck.

## Front End Structures

The standard defines a front end structure as a vertical barrier across the front of a deck that prevents cargo from moving forward. A cab shield is not considered a front end structure.

Division 5 of Part 1 of the standard sets out a number of requirements for front end structures used as part of the cargo securement system. Section 35.07 of the MVAR contains additional requirements for affixing and marking front end structures. These requirements are outlined in the sections that follow. They apply only when cargo is in contact with the front end structure.

## STRENGTH

Front end structures less than 1.83 m in height must be able to withstand a static load of at least 50% of the total cargo weight uniformly distributed over the front end structure. If the front end structure is 1.83 m or taller, then the structure must be able to withstand a static force equal to 40% of the total cargo weight.

To assist the log-haul industry, a drawing package of a log-haul bulkhead has been prepared which can be constructed in a small fabrication shop. These drawings are available free of charge from the Commercial Transport Section (Weights, Dimensions & Load Security). To request a drawing package, call (250) 953-4026.

## HEIGHT

Since the operator of a vehicle typically occupies a space within 120 cm of the cab floor, the standard requires a front end structure that is no shorter than the shorter of:

- 122 cm above the deck, or
- the height at which the front end structure prevents the cargo from moving forward.

## WIDTH

The width of a front end structure must be no narrower than the narrower of:

- the width of the vehicle, or
- the width at which the front end structure prevents the cargo from moving forward.

## PENETRATION RESISTANCE

A front end structure must be able to resist penetration by an article of cargo when the vehicle decelerates at a rate of 6.1 m/s<sup>2</sup>. A front end structure must not have any openings or gaps that would allow an article of cargo to pass through.

## MARKING/IDENTIFICATION

A front end structure must be attached according to its manufacturer's recommendations. A front end structure must also be identified in one of the following two ways:

1. permanently marked with:

- its model number or serial number
- the name and address of its manufacturer, and
- its rated capacity for cargo weight.

2. identified by a copy of a letter, signed by the manufacturer or a professional engineer and carried in the vehicle, that certifies:

- its model number or serial number, and
- its rated capacity for cargo weight.

## Hanging Meat

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Cargo must be secured so that it cannot affect the operation of the vehicle by shifting or swaying. This means that hanging meat must be properly secured.

## Logs

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Division 1 of Part 2 of the standard and section 35.06 of the MVAR outline specific requirements for securing logs. The following sections outline these requirements.

### VEHICLES TRANSPORTING LOGS OR POLES

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Under section 29(1) of the standard, vehicles transporting logs and poles must be equipped with bunks, bolsters, stakes or other means of cradling the logs.

Section 35.05 of the MVAR sets out additional requirements for vehicles transporting logs or poles. Stakes and stake extensions must form an angle of 90 degrees or less with the bunk cross member. Stakes must be secured to the vehicle by one of the following methods:

- by a method approved by a professional engineer
- by a pin and closed loop stake lines consisting of wire rope at least 22 mm in diameter, or
- with properly welded gussets of adequate strength.

Stake extensions must be securely attached to the stakes and bunks must be securely attached to the vehicle frame.

A pole, tri-axle or quad trailer may be secured to a truck by one securement device of sufficient strength.

### LOG CONFIGURATION

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Division 1 of Part 2 of the standard sets out specific requirements for securing logs and poles, including:

- logs must be solidly packed
- outer bottom logs must touch and rest solidly against a bunk, bolster or stake
- each outside log in a stack should touch at least two bunks, bolsters or stakes
- if one end of a log does not touch, it must rest on the other logs in a stable manner and extend beyond the bunk, bolster or stake
- the center of the highest log on each side or end must be lower than the tops of the bunks or stakes, and
- upper logs that form the top of the load must be at least level, but preferably crowned.

### SHORT LOGS

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Logs up to 4.9 m long loaded lengthwise on a flat deck semi-trailer must be secured by at least two tiedowns. Load encircling binders are not sufficient. If logs are shorter than 3.04 m and blocked in the front and rear, the logs may be secured by only one tiedown. The aggregate working load limit of tiedowns used to secure each stack must be at least 1/6 of the weight of the stack.

### LONG LOGS

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As illustrated in the figure on the following page, each stack of logs longer than 4.9 m loaded lengthwise on a frame or flatbed vehicle must be secured by at least two tiedowns with an aggregate working load limit of at least 1/6 of the weight of the stack. Each outside log must be secured by at least two tiedowns.



Alternatively, long logs on a frame vehicle may be secured by two or more tiedowns used as wrappers to encircle the entire stack of logs.

Logs transported by pole trailers must be secured by at least one tiedown at each bunk or two or more tiedowns used as wrappers that encircle the entire stack. The front and rear wrappers must be at least 3.04 m apart. The aggregate working load limit of tiedowns used to secure each stack must be at least 1/6 of the weight of the stack.

Chock blocks must be used to prevent shifting of logs that have a diameter of more than 0.6 m. Large diameter logs that rise above the bunks must be secured to the underlying load with at least two additional wrappers.

### INSPECTING LOG LOADS

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Before a vehicle transporting logs enters a highway from a private road, the driver must inspect the vehicle, the logs and the securing devices to ensure compliance with the standard. If required, the driver must make adjustments and add more securing devices.

## Building Products

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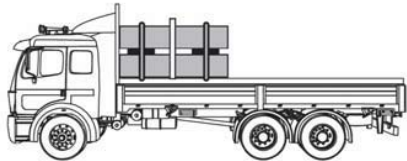
Bundles of lumber, drywall, plywood and similarly shaped building products must be secured in accordance with the requirements set out in Division 2 of Part 2 of the standard.

Side by side bundles must either be:

- placed in direct contact with one another, or
- prevented from shifting towards each other by dunnage or blocking.

Bundles in two or more layers may be secured using a variety of methods:

1. If blocked from lateral movement by stakes on the sides of the vehicle, or by blocking or high friction devices between tiers, bundles may be secured by tiedowns laid over the top layer, with a minimum of two tiedowns for bundles longer than 1.52 m. Proper securement of bundles on a vehicle equipped with stakes is illustrated below.



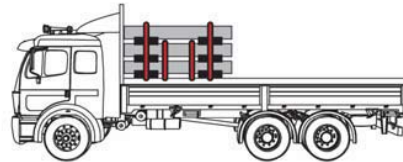
2. If the bundles are placed directly on top of one another, or on spacers of adequate size and orientation, they may be secured by a combination of:

- tiedowns over the top layer
- tiedowns over the second layer, or at 1.85 m above the trailer deck, whichever is greater, and
- tiedowns for other multiple layers not over 1.85 m above the trailer.

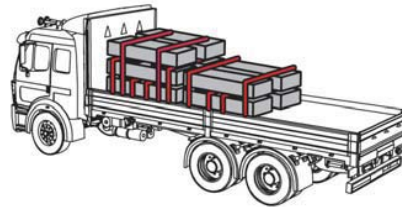
For example:

- if there are two tiers of bundles, each over 1.85 m in height, each tier must be secured by tiedowns in accordance with the general cargo securement requirements
- if there are three tiers of bundles and the bottom two tiers exceed 1.85 m in height, all tiers must be secured independently in accordance with the general cargo securement requirements, or
- if there are three tiers of bundles and only the top most tier exceeds 1.85 m in height, then the bottom two tiers may be secured together and the top tier

must be secured independently. This arrangement of bundles is shown in the figure below.



3. Bundles may be secured by tiedowns over each layer, with at least two tiedowns on each top bundle longer than 1.52 m, as shown below.



## Metal Coils

The standard outlines specific requirements for the transportation of coils of rolled sheet metal where the shipment of coils weighs 2,268 kg (5,000 lb) or more.

Coils transported with eyes vertical must be prevented from tipping forward, rearward and sideways. Blocking, bracing, friction mats or tiedowns must also be used to prevent forward and rearward movement of vertical coils. Coils transported with eyes crosswise or lengthwise must be secured against rolling as well as against forward and rearward movement.

Detailed requirements for securement of the various possible configurations of metal coils can be found in Division 3 of Part 2 of the standard.

## Paper Rolls

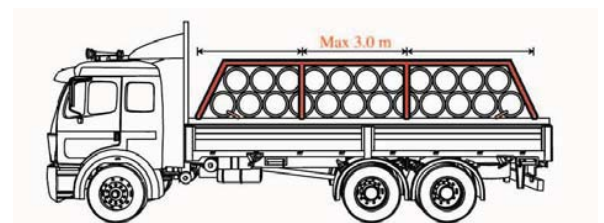
Shipments of paper rolls weighing 2,268 kg (5,000 lb) or more must be secured in accordance with Division 4 of Part 2 of the standard.

Rolls loaded in sided vehicles require the use of blocking, bracing, friction mats or tiedowns to prevent sliding, tipping or rolling. Stacks of rolls require additional securement to prevent significant movement by upper layers. Rolls loaded on flatbed or curtain sided vehicles require additional tiedowns. Transporters of paper rolls should refer to the standard for detailed securement requirements.

## Concrete Pipe

Securement of concrete pipe loaded crosswise on a flatbed vehicle is governed by Division 5 of Part 2 of the standard. The general cargo securement requirements apply to concrete pipe transported in sided vehicles or loaded with eyes vertical or lengthwise.

Pipes of different sizes within one load must be grouped together and secured separately. The front and rear pipes in a single or bottom layer must be immobilized by blocking, wedges, vehicle structure or other equivalent means. Tiedowns are required through the front and end pipes in order to firmly hold inner pipes in place. As shown in the figure below, tiedowns must be placed both lengthwise and crosswise over groups of small pipe that are not individually secured by tiedowns.





Large pipes require additional tiedowns through individual pipes. Detailed securement requirements are outlined in the standard.

## Intermodal Containers

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Division 6 of Part 2 of the standard outlines securement requirements for intermodal containers. Cargo within the containers must be secured in accordance with the general cargo securement requirements or, when applicable, the commodity specific requirements.

Intermodal containers loaded on a container chassis vehicle must be secured to the container chassis with integral locking devices. These devices must ensure the cargo does not move more than the maximum set out in the standard. Chain is not an integral locking device but may be used as an interim measure to secure an intermodal container to a container chassis vehicle if the integral locking device is damaged or missing.

Intermodal containers transported on other types of vehicles must be secured to the vehicle by:

- chains, wire ropes or integral locking devices that are fixed to all the lower corners, and / or
- crossed chains that are fixed to all the upper corners

with an aggregate working load limit of 50% of the weight of the container. Securement points need not be on the exact corners of the container.

## Vehicles as Cargo

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In accordance with Division 7 of Part 2 of the standard, vehicles with a GVW of less than 4500 kg must be secured at both the front and rear with a minimum of two tiedowns. A winch may be used as a front tiedown. The general requirements for numbers of tiedowns do not apply. Heavy vehicles that weigh more than 4500 kg must be restrained by a minimum of four tiedowns, each with a working load limit of at least 2,268 kg (5,000 lb).

Additional tiedowns may be required so that the aggregate working load limit of all tiedowns is at least 50% of the cargo weight. Accessory equipment on heavy vehicles, such as hydraulic shovels, must be completely lowered and secured to the vehicle.

Stacked, flattened or crushed vehicles must be secured using containment walls, tiedowns, or a combination of these two methods. Tiedowns must have a working load limit of at least 2,268 kg (5,000 lb) and must not be synthetic webbing. Vehicles transporting flattened or crushed vehicles must have equipment that prevents loose parts falling from the load.

## Roll-on/roll-off and Hook Lift Containers

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Generally, roll-on/roll-off and hook-lift containers are carried on specially designed vehicles that are equipped with an integral securement system. Where a container is being transported on a vehicle without a functioning or compatible integral securement system, Division 8 of Part 2 of the standard specifies a number of securement requirements.

Where a front stop or lifting device is missing, damaged or incompatible with the securing devices on a container, the container must be secured to the vehicle using manually installed tiedowns that provide the same level of securement as the component they replace.

If the vehicle does not have an integral securement system, the container must be:

- blocked against forward movement by the lifting device, stops or another restraint mechanism, such as a chain
- secured to the front of the vehicle by the lifting device, or another securing device, to prevent sideways and vertical movement, and

- secured to the rear of the vehicle using:
  - a tiedown attached to the vehicle chassis and the container. This tiedown may be attached to one rail.
  - 2 tiedowns installed lengthwise, each securing one side of the container to one of the vehicle's side rails
  - 2 hooks, or
  - equivalent mechanisms.

The same device may be used for securing the container to the front and rear of the vehicle.

## Boulders

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Boulders that weigh more than 5,000 kg, or have a volume greater than two cubic metres, must be secured as outlined in Division 9 of Part 2 of the standard when transported on a flatbed vehicle or a vehicle that is not specifically designed for transporting boulders.

A boulder must be placed with its flattest or largest side on the deck and must be supported by at least two pieces of hardwood blocking or in a crib. At least two chains must be used to secure the boulder to the vehicle. Non-cubic shaped boulders with unstable bases require additional tiedowns.

## Baggage and Cargo on Buses

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Section 35.09 of the MVAR places strict limits on the transportation of cargo or baggage in the passenger compartment of buses. Cargo must be carried:

- in overhead racks adequately designed and constructed, and equipped with an elastic rope or cord, doors, or a rigid vertical edge equal to 1/2 the height of the remaining opening
- stowed under the seats and against a barrier which prevents forward movement
- in a separate compartment enclosed on all sides, or
- on a passenger's lap.

Under no circumstances may baggage or other cargo block or intrude on any aisle or exit.

In addition, a bus must not be loaded in a way that:

- obscures the driver's view to the front, left or right
- obstructs access to emergency equipment
- interferes with the movement of the driver's arms or legs, or
- hinders the safe operation of the bus.

**For more information, please contact the nearest weighscale in your area.**

Website: [www.th.gov.bc.ca/cvse](http://www.th.gov.bc.ca/cvse)