



TruckingHR Canada  
**Learning and  
Development  
Centre**

National Occupational Standard –  
Commercial Transport Truck Operator

**SUPPLEMENT #1**  
**Transporting Cargo on Flatbed Vehicles**



 **TruckingHR  
Canada**

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## ABOUT TRUCKING HR CANADA

As a national, non-profit organization, Trucking HR Canada (THRC) advances modern HR solutions for the trucking and logistics workforce. One of our strategic priorities is to make a company's job easier by delivering a comprehensive collection of up-to-date guides, reports, templates and more to support effective human resources management and recruitment and retention efforts.

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## BACKGROUND

Trucking HR Canada (THRC) publishes a National Occupational Standard for Commercial Transport Truck Operators (NOS-O). The NOS-O defines the knowledge, skills, and abilities ("competencies") required for this occupation.

This document is a supplemental resource to the NOS-O. For the full suite of supplemental resources, visit **truckinghr.com**.

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## PURPOSE OF THIS STANDARD

This standard is a supplement to the National Occupational Standard for Commercial Transport Truck Operator. It sets out the additional occupational competencies needed for individuals to successfully transport cargo on flatbed vehicles.

## WHO CAN USE THIS STANDARD

This standard is designed to be used by training developers and training providers.

## HOW TO USE THIS STANDARD

This standard consists of 16 blocks of competencies, each one includes knowledge and applied competencies. These blocks inform the complexity, duration, and learning environment of training content, and delivery methods, for all aspects of training curriculum on the topic of transporting cargo on flatbed vehicles. These topics can be introduced during or after entry-level training (ELT) or occupational-level training (OLT).

If you have questions or are interested in more information, contact [info@truckinghr.com](mailto:info@truckinghr.com)



## BACKGROUND

Operation of open and covered flatbed trailers requires application of specialized loading/unloading procedures, knowledge of weight distribution techniques, knowledge of cargo securement requirements, and the use of a wide array of compliant tiedown devices and methods. This includes understanding of the specific requirements for location, quantity, placement, type, and condition of tiedown devices for many different cargo commodities.

Specialized knowledge of cargo securement requirements is necessary for operators of flatbed vehicles. The nature of the cargo transported on flatbed vehicles may fall into one or more of the specific commodities included in cargo securement regulations and can also result in unique loading and securing situations that operators must be prepared to deal with.

## APPLICABILITY

Not every section of the standard applies to every flatbed operator. The work being performed by an operator dictates the applicable sections.

## COMPETENCIES

There are a total of 16 blocks that include knowledge competencies (in blue) and practical skills competencies (in orange) that are needed for a commercial transport truck operator to transport cargo on flatbed vehicles safely and successfully.



## BLOCK 1 CARGO SECUREMENT REGULATIONS

### A. The commercial flatbed transport truck operator understands cargo securement regulations.

This means the operator knows:

- 1) Commercial vehicles or combinations of vehicles with a registered gross weight more than 4500 kg must have cargo secured according to regulations.
- 2) Cargo must be firmly immobilized or secured on or within the vehicle by structures of adequate strength, blocking, bracing, dunnage or dunnage bags, shoring bars, tiedowns, or a combination of these.
- 3) Cargo must be secured and contained to prevent it from leaking, spilling, blowing off, falling through, or otherwise becoming dislodged from the vehicle.
- 4) All articles on a vehicle are cargo, including such things as blocking, tools, tarps, tiedowns, etc.
- 5) General requirements are in **Part 1** of the cargo securement regulations and specific requirements for certain commodities are in **Part 2**.
- 6) **Part 2** requirements of the cargo securement regulations must be followed whenever transporting the cargo listed as a commodity.
- 7) The cargo securement system shall be capable of withstanding 80% of the cargo's weight in a forward direction, 50% of the cargo's weight in a rearward direction, and 50% of the cargo's weight in either sideways direction.
- 8) The cargo securement system shall provide a downward force equal to at least 20% of the weight of an article of cargo.

### B. The commercial flatbed transport truck operator complies with cargo securement regulations.

This means the operator will:

- 1) Refuse to operate a flatbed vehicle on a highway with cargo that is not secured as required by regulations.
- 2) Seek assistance and clarification when encountering a situation where their understanding of any regulation is not clear.
- 3) Seek assistance and clarification when encountering cargo that they are unable to confirm is secured as required by regulations.

## BLOCK 2 CARGO TIEDOWN RATING

### A. The commercial flatbed transport truck operator understands cargo tiedown rating.

This means the operator knows:

- 1) Tiedowns or tiedown components may not be used unless marked by the manufacturer with respect to working load limit (WLL) as defined in **Part 4** of the regulations.
- 2) The location of WLL markings and corresponding strength of chain, wire rope, tiedown devices, and assemblies being used.
- 3) Bungee cords and tarp straps are only suitable as supplementary restraint for light weight cargo or equipment, and not suitable for use as tiedowns.
- 4) Aggregate WLL is the sum of one-half of the working load limit for each end of a tiedown attached to an anchor point.
- 5) The aggregate WLL of tiedowns used must be at least 50% of the weight of the cargo.
- 6) Tiedowns must be routed inside the rub rail unless the tiedown is fitted with a flat hook end and it is not possible to attach the hook to more suitable anchor point.

### B. The commercial flatbed transport truck operator uses cargo tiedowns correctly

This means the operator will:

- 1) Use specially designed and rated cargo tiedowns in ways that comply with regulations.





## BLOCK 3 MINIMUM TIEDOWN REQUIREMENTS

### A. The commercial flatbed transport truck operator understands the requirements for the number of tiedowns needed:

This means the operator knows:

- 1) An article of cargo is blocked against forward movement when it is against a front end structure or bulkhead, against other immobilized cargo, or immobilized by a device.

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- 2) An article of blocked cargo not longer than 3.04 m, can be secured by one tiedown.

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- 3) An article of blocked cargo longer than 3.04 m, can be secured by one tiedown in the first 3.04 m, and one additional tiedown for each additional 3.04 m, or fraction of 3.04 m.

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- 4) An article of unblocked cargo, 1.52 m long or less, weighing 500 kg or less, can be secured by one tiedown.

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- 5) An article of unblocked cargo, 1.52 m long or less, weighing more than 500 kg, must be secured by at least two tiedowns.

---

- 6) An article of unblocked cargo longer than 1.52 m, but not longer than 3.04 m, must be secured by at least two tiedowns.

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- 7) An article of unblocked cargo longer than 3.04 m, must be secured by at least two tiedowns in the first 3.04 m, and one additional tiedown for each additional 3.04 m, or fraction of 3.04 m.

---

- 8) Cargo consisting of machinery or fabricated structural items, because of their design, size, shape, or weight, can be secured by special methods that adequately secure the article of cargo, when properly used in accordance with the manufacturer's instructions

### B. The commercial flatbed transport truck operator understands the requirements for the number of tiedowns needed.

This means the operator will:

- 1) Confirm tiedown quantity, location, and placement complies with regulations before transporting cargo.

## BLOCK 4 CARGO SECUREMENT DEFECTS AND VIOLATIONS

### A. The commercial flatbed transport truck operator understands defects and violations relating to cargo securement regulations.

This means the operator knows:

- 1) The minimum number, strength, and location of the required tiedowns for the cargo being transported.

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- 2) The difference between articles of cargo that are blocked and unblocked.

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- 3) How to confirm cargo is secured according to the regulations.

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- 4) How to confirm cargo tiedowns, blocking, spacers, and supports, are properly secured into position, and tightened.

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- 5) How to identify tiedown size and strength ratings.

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- 6) How to calculate the aggregate working load limit (WLL) of tiedowns.

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- 7) How to identify defects in chain, wire rope, cargo straps, anchor points, and tiedown assemblies.

### B. The commercial flatbed transport truck operator inspects tiedown location, condition and security.

This means the operator will:

- 1) Confirm the required cargo tiedowns are properly in place, in good condition, and tightened correctly.

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- 2) Inspect cargo and cargo tiedown condition for defects.

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- 3) Remove defective tiedowns from service.

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## BLOCK 5 CARGO INSPECTION REQUIREMENTS

### A. The commercial flatbed transport truck operator understands the regulatory requirements for inspecting cargo and securing devices.

This means the operator knows:

- 1) A vehicle's cargo and the cargo securement system used must be inspected before driving the vehicle, and inspected again not more than 80 kilometres from the point where the cargo was loaded.
- 2) A vehicle's cargo and the cargo securement system must be inspected every change in duty status, every 240 km of travel, or every three hours, whichever occurs first.
- 3) Each time a vehicle's cargo and the cargo securement system are inspected, the driver must ensure necessary adjustments are made before continuing to drive.
- 4) The importance of logging their cargo inspection activities.

### B. The commercial flatbed transport truck operator adheres to the periodic inspection requirements for cargo security.

This means the operator will:

- 1) Conduct required cargo and tiedown inspections and log their inspection activity.
- 2) Identify tiedown and cargo securement defects and take corrective action when a defect is present.



## BLOCK 6 FLATBED LOADING AND UNLOADING

**A. The commercial flatbed transport truck operator involved in loading and/or unloading cargo understands methods that must be used to safely load and unload cargo.**

This means the operator knows:

- 1) The tare weight and allowable gross weight of their vehicle, and the weight of their cargo.

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- 2) How to locate and follow applicable operating procedures, hazard assessments, and related procedural documents that address loading, securing, and unloading the cargo being transported on a flatbed vehicle.

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- 3) The dangers of working at heights, occupational health and safety requirements applicable to working at heights, how to use fall arrest systems properly, and their right to refuse unsafe work.

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- 4) How to use manual cargo handling equipment safely, manual lifting weight capabilities, when to seek assistance, and the importance of lifting with one's legs, not one's back.

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- 5) When and how to utilize various types of PPE, such as high-visibility clothing or vest, gloves to protect hands, steel toe boots to protect ankles, and cleats for traction in icy conditions.

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- 6) The risk of injury to back, arms, legs, and feet from handling and securing cargo, the value of and methods for warming up muscles before starting some tasks.

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- 7) The risk of injury from slips, trips, and falls from slippery surfaces and the risk of not maintaining three points of contact when entering and exiting or getting on or off a vehicle.

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- 8) Using proper body mechanics, avoiding twisting, muscle warm-up, and proper lifting and handling techniques are effective ways to prevent muscle strain and avoid injury from over-exertion.

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- 9) The importance of ground surface conditions while working around the vehicle and cargo, and the importance of having solid footing.

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- 10) The importance of using three-point contact when climbing onto or off a vehicle or load, using ladders and handrails when they are available, and avoiding using cargo loaded on the vehicle as a means of balance or support.

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- 11) The importance of having pre-planned escape zones in the event of cargo shifting, rolling, tipping, sliding, or falling, and that underneath a vehicle may be a safe escape zone.

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- 12) The importance of identifying situational danger zones and safe zones whenever loading or unloading involves the use of a lifting machine or equipment being operated by another person.

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- 13) Use of a lifting machine or equipment must be restricted to items a driver is trained and authorized to use.

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- 14) How to position cargo and adjust axle or fifth wheel position to distribute weight correctly on the vehicle.

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- 15) When articles of cargo on or within a vehicle are placed beside each other and secured by tiedowns that pass over two or more articles, the articles must be placed in direct contact with each other or prevented from moving towards each other

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- 16) Cargo that may roll must be restrained by chocks, wedges, a cradle, or another securing device.

**B. The commercial flatbed transport truck operator involved in loading and/or unloading cargo practices safe loading and unloading techniques.**

**This means the operator will:**

- 1) Locate and follow applicable operating procedures, hazard assessments, and related procedural documents that address loading, securing, and unloading the cargo being transported on a flatbed vehicle.

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  - 2) Load and unload their cargo when parked on a stable flat surface.

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  - 3) Load cargo, and/or confirm cargo has been loaded according to cargo securement regulations.

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  - 4) Follow relevant PPE requirements and maintain three-point contact getting on and off the vehicle.

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  - 5) Avoid working above allowable heights without suitable safety systems.

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  - 6) Avoid loading or unloading in a high-risk area and use a spotter to control potential traffic hazards when necessary.
- 



## BLOCK 7 CARGO STRAPS, CHAINS, TENSIONERS, AND TARPS

**A. The commercial flatbed transport truck operator using cargo straps, chains and tensioners, or cargo-covering tarps understands the proper use and application of these devices.**

This means the operator knows:

- 1) How to position and tighten cargo straps, secure unused cargo strap ends, and store cargo straps when they are not in use.

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- 2) How to position and operate cargo strap winches, and use bungee cords and rope.

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- 3) How to position, secure, and tighten cargo chains, and operate lever and ratchet-type chain tensioners.

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- 4) How to use secondary securement methods to prevent certain types of tiedowns from becoming unintentionally unfastened.

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- 5) How and when to place edge protection and materials between straps and chains to prevent cargo damage.

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- 6) How to safely use metal bars to tighten tiedowns having good footing, using a firm grip with both hands, and avoiding pinch areas.

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- 7) When tarping of cargo is required and how to position and secure tarps.

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- 8) How to place tarp coverings over cargo and secure the tarps properly.

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- 9) How to care for, roll up, store, and secure tarps when they are not in use.

---

- 10) The dangers of working at heights, how to use fall arrest systems properly, and their right to refuse unsafe work.

**B. The commercial flatbed transport truck operator using cargo straps, chains and tensioners, or cargo-covering tarps uses them correctly and safely.**

This means the operator will:

- 1) Operate cargo straps, chains and tensioners, or cargo-covering tarps according to manufacturer instructions and workplace policies and procedures.

---

- 2) Avoid working above allowable heights without suitable safety systems.



## BLOCK 8 SPECIALIZED VEHICLES AND EQUIPMENT

**A. The commercial flatbed transport truck operator involved in operating specialized vehicles and equipment understands correct and safe operating procedures.**

This means the operator knows:

- 1) The correct procedure for installing, securing, and removing a stake and rack system.

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- 2) The correct procedure for operating a rolling top or sliding load covering system.

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- 3) The correct procedure for closing, tensioning, and opening curtain sides on a flatbed vehicle with an upper structure.

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- 4) The correct procedure for operating, securing, and transporting a portable forklift that mounts to the back of a flatbed vehicle.

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- 5) The correct procedure for operating a flatbed with a tilting deck.

**B. The commercial flatbed transport truck operator involved in operating specialized vehicles and equipment uses them correctly and safely.**

This means the operator will:

- 1) Operate specialized vehicles and equipment according to manufacturer instructions and workplace policies and procedures.
- 



## BLOCK 9 TRANSPORTING LOGS

### A. The commercial flatbed truck operator transporting logs understands the regulatory requirements for securing them.

This means the operator knows:

- 1) Transporting logs requires them to be loaded and secured according to the commodity-specific requirements of Part 2 of the regulations.
- 2) Logs must be transported on vehicles with bunks, bolsters, stakes, standards, or other features that cradle the logs, keep them from rolling, and equipment is free of damage.
- 3) Logs must be transported on vehicles with devices that maintain at least 900 kg of tension on the stack of logs.
- 4) Shortwood logs that fit crosswise on a flatbed can be transported on a vehicle up to 10 m long without center stakes, or a longer vehicle having center stakes.
- 5) The outer logs in a shortwood stack loaded crosswise on a flatbed must contact at least two points of vehicle structure, while shorter logs must be supported by longer ones.
- 6) Shortwood logs loaded crosswise on a flatbed must not extend more than 1/3 of their length past supporting vehicle structure, double stacks must slope downward toward the middle of the load, and logs must not be higher than stakes.
- 7) Shortwood logs loaded lengthwise on a flatbed must have outer logs contacting at least two points of vehicle structure.
- 8) Shortwood logs on a flatbed must be secured with at least two tiedowns crossing over each stack.
- 9) Longwood logs carried lengthwise on a flatbed must be loaded with a crown, no more than 1/3 of their length past the vehicle structure, and with the center of the top logs below the top of stakes.

### B. The commercial flatbed truck operator transporting logs secures and transport them according to regulatory requirements.

This means the operator will:

- 1) Transport shortwood or longwood logs on a flatbed only when cargo is secured according to the regulations.





## BLOCK 10 TRANSPORTING DRESSED LUMBER

**A. The commercial flatbed truck operator transporting dressed lumber and similar building materials understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Transporting bundles of dressed lumber and similar building materials requires them to be loaded and secured according to the commodity-specific requirements of Part 2 of the regulations.

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- 2) Bundles of dressed lumber and similar building materials loaded side-by-side must be positioned directly against each other or have blocks between them.

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- 3) Spacers under bundles of dressed lumber and similar building materials must be made of solid material, long enough to support all the pieces in the bottom row of a bundle, and placed so that the widest surface is in contact with the bundle.

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- 4) Loads of dressed lumber and similar building materials up to two tiers high must be secured based on their length and weight and whether bundles are blocked, according to the general tiedown requirements.

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- 5) Loads of dressed lumber and similar building materials loaded three tiers or more high must have additional tiedowns over the middle tier when there are three tiers in a stack, and over a bundle less than 6 ft. high when there are more than three tiers.

**B. The commercial flatbed truck operator transporting dressed lumber and similar building materials secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport dressed lumber and similar building materials on a flatbed only when cargo is secured according to the regulations.



## BLOCK 11 TRANSPORTING METAL COILS

**A. The commercial flatbed truck operator transporting metal coils understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Transporting a load of metal coils, weighing 2,268 kg or more, requires cargo to be loaded and secured according to the commodity-specific requirements of Part 2 of the regulations.

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- 2) Metal coils can be transported standing on their end with their eyes vertical, laying on their side with eyes lengthwise, or laying on their side with eyes crosswise.

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- 3) Metal coils can be secured individually, several at a time but secured separately, or grouped together and secured as a group.

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- 4) Transporting metal coils requires the driver to know the weight of each coil or group of coils.

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- 5) Tiedowns used to secure metal coils must be positioned so that their angles are as steep as possible and never less than 45 degrees.

---

- 6) Transporting metal coils often involves the use of nailed blocking and friction mats.

---

- 7) Securing a single metal coil with eye vertical requires at least two diagonal tiedowns, a lateral tiedown over the eye, and a tiedown around the front of the coil to prevent forward movement.

---

- 8) Securing a group of metal coils with eyes vertical requires at least one tiedown around the front of the group, one tiedown across the center of the eyes of each row of coils, along with blocking or bracing.

---

- 9) Transporting metal coils with eyes vertical on a pallet requires each coil to be fastened to the pallet.

---

- 10) Transporting metal coils with eyes crosswise requires the use of a properly made cradle of timbers, chocks or wedges, and coil bunks.

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- 11) Securing a metal coil or row of metal coils with eyes crosswise requires the use of at least one tiedown facing forward, and one facing rearward through each coil eye, which cannot be crossed, and an optional tiedown securing each cradle.

---

- 12) Transporting metal coils with eyes lengthwise requires the use of a properly made cradle of timbers, chocks or wedges, and coil bunks.

---

- 13) Securing metal coils with eyes lengthwise requires at least two diagonal tiedowns, or two parallel tiedowns, and one or two lateral tiedowns over the top of each coil.

**B. The commercial flatbed truck operator transporting metal coils secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport metal coils on a flatbed only when cargo is secured according to the regulations.
- 

## **BLOCK 12 TRANSPORTING PAPER ROLLS**

**A. The commercial flatbed truck operator transporting paper rolls understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Transporting a load of paper rolls weighing 2,268 kg or more requires cargo to be loaded and secured according to the commodity-specific requirements of Part 2 of the regulations.
  - 2) Paper rolls with eyes lengthwise or crosswise may be transported on a flatbed vehicle stacked on top of each other, but paper rolls with eyes vertical must not be stacked.
  - 3) Paper rolls transported on a flatbed vehicle must have tiedowns over the top of every roll or stack.
- 

**B. The commercial flatbed transport truck operator secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport paper rolls on a flatbed only when cargo is secured according to the regulations.
- 



## BLOCK 13 TRANSPORTING CONCRETE PIPE

**A. The commercial flatbed truck operator transporting concrete pipe understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Concrete pipe that is grouped and banded together to prevent rolling, transported on a flatbed vehicle, can be secured as if it is general cargo.

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- 2) Transporting concrete pipe with bell ends requires the pipe to be raised up from the deck to allow the bell to clear the deck.

---

- 3) Loads with a single tier of pipe with bell ends requires the bell ends to be positioned in an alternating pattern, while loads with multiple tiers requires the bell ends of the first tier to face the same way and each upper tier to be positioned with the bell end in the opposite direction of the layer below.

---

- 4) Wooden blocking can be used to secure concrete pipe as wedges, chocks, or rectangular pieces, as long as they are at least 10 x 15 cm and meet minimum length requirements.

---

- 5) Concrete pipe can be secured using chain or wire rope positioned according to the minimum size, location, and position of the regulations.

**B. The commercial flatbed transport truck operator transporting concrete pipe secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport concrete pipe on a flatbed only when cargo is secured according to the regulations



## BLOCK 14 TRANSPORTING INTERMODAL CONTAINERS

**A. The commercial flatbed truck operator transporting intermodal containers understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Intermodal containers may be transported on a flatbed vehicle only when all its lower corners rest on the vehicle, or the corners are supported by a structure capable of bearing the weight of the container.

---

- 2) Intermodal containers transported on a flatbed vehicle must be secured to the vehicle independently at the front and rear by:
  - chains, wire ropes, or integral devices fixed to all four lower corners, and/or
  - crossed chains fixed to all four upper corners

---

- 3) Intermodal containers transported on a flatbed vehicle and secured by chain or wire rope must have a means of preventing each of these tiedowns from becoming unfastened while in transit.

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- 4) An empty intermodal container can be transported on a flatbed vehicle using indirect tiedowns over the top of the container.

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- 5) An empty intermodal container can be transported on a flatbed vehicle with as much as 1.52 m of the container extending beyond the end of the deck surface.

**B. The commercial flatbed truck operator transporting intermodal containers secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport intermodal containers on a flatbed only when cargo is secured according to the regulations.



## BLOCK 15 TRANSPORTING VEHICLES AS CARGO

**A. The commercial flatbed truck operator transporting vehicles understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Light vehicles can be transported only when secured with at least one tiedown at the front and one at the rear, having a working load limit of at least 2,268 kg.
- 2) Vehicles weighing 4,500 kg or more can be transported only when secured with at least two tiedowns at the front and two at the rear, having a working load limit of at least 2,268 kg, positioned as close to the front and rear as possible.
- 3) Securing vehicles weighing 4,500 kg or more requires tiedowns preventing forward movement to be rated for 80% of the vehicle's weight, and the aggregate WLL to be at least 50% of the vehicle's weight.

**B. The commercial flatbed transport truck operator secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport vehicles on a flatbed only when cargo is secured according to the regulations.



## BLOCK 16 TRANSPORTING BOULDERS

**A. The commercial flatbed truck operator transporting boulders understands the regulatory requirements for securing them.**

This means the operator knows:

- 1) Transporting boulders with relatively straight sides requires them to be positioned on at least two wooden blocks that extend beyond the boulder and secured with at least two chains positioned in valleys or notches of the boulder.

---

- 2) Transporting boulders with rounded sides requires the use of wooden cribs and at least two crossed chains or “four-chain” type tiedowns.

---

- 3) Tiedowns used to secure boulders must meet the strength and positioning requirements of the regulations, must be properly anchored to the vehicle, have a means of tensioning, and a means of preventing unintentional release of tension.

**B. The commercial flatbed transport truck operator secures and transport them according to regulatory requirements.**

This means the operator will:

- 1) Transport boulders on a flatbed only when cargo is secured according to the regulations.





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