

# Cargo Securement Safety Fact Sheet

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**E**very day, millions of tons of goods move across highways, railroads, ports, and warehouses. From forklifts in warehouses to cranes at shipyards to trucks on the highway, cargo securement affects every step of the supply chain.

When cargo is not properly secured, lives are put at risk. Common hazards include:

- **Thousands of crashes, rollovers, and spills happen each year because of shifting loads.**
- **Unsecured cargo can fall from trucks, cranes, or forklifts, striking workers or vehicles.**
- **Unsafe loads cause costly delays, damaged goods, and expensive cleanups.**

Cargo securement is critical for truck drivers, warehouse staff, crane operators, dockworkers, and longshoremen. Everyone has a role in keeping loads stable, safe, and under control.



## What is cargo securement?

Cargo securement means using procedures and equipment to keep materials from shifting, sliding, leaking, rolling, or falling during handling or transport. It protects workers, the public, the cargo itself, and the equipment in use.

## Key parts of a securement system

- **Vehicle and equipment structures:** Truck beds, trailers, forklifts, cranes, and anchor points used to hold cargo.

- **Blocking and bracing:** Bars, chocks, or dunnage bags that fill gaps and stop movement.
- **Tie-downs:** Straps, ropes, chains, and nets that attach cargo to vehicles or equipment.
- **Friction mats or pads:** Increase grip and reduce sliding.
- **Edge protection:** Guards placed where straps or chains touch sharp edges to prevent damage.

## Essential safety practices

- **Use the right equipment:** Choose straps, chains, or rigging gear rated for the weight of the load. Remove any damaged or worn equipment from service.
- **Inspect loads and gear:** Check securement devices before each trip or lift, and recheck them during transit or handling.

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- **Balance and distribute weight:** Never overload equipment. Keep loads flat, even, and within rated limits.
- **Immobilize cargo:** Secure items so they cannot move forward, backward, sideways, or upward.
- **Protect tie-downs and workers:** Use edge guards and make sure loads don't block the operator's view or exits.
- **Stay alert in work areas:** Keep docks, warehouses, and yards clean, dry, and free of clutter to prevent slips and falling cargo.
- **Training and teamwork:** Make sure all workers — drivers, forklift operators, crane operators, and dock crews — understand safe loading, securement, and unloading practices.

## What you should do immediately

- **Before your next load:** Inspect all tie-downs, chains, and straps. Throw out or repair any that are worn.
- **If you are about to load something big or odd shaped** (metal coils, pipes, machinery), check whether special securement rules apply.
- **If you are supervising,** schedule regular safety meetings to go over securement rules and conduct refresher training.
- **Always stop and recheck loads** during transport or movement operations, especially after the first leg, after rough terrain, or after loading or unloading.

Remember, cargo securement is everyone's responsibility — truck drivers, warehouse staff, crane operators, dockworkers, longshoremen, and more. By choosing the right equipment, inspecting regularly, and following federal rules, workers protect themselves, their coworkers, and the public. Safe loads mean safer jobs, safer roads, and safer communities.

## Safety regulations

### *Federal Motor Carrier Safety Administration (FMCSA)*

**49 CFR Part 393, Subpart I** requires cargo to be secured to resist a:

- Forward force of 80% of cargo weight.
- Sideways force of 50% of cargo weight.
- Rearward force of 20% of cargo weight.

### *Occupational Safety and Health Administration (OSHA)*

OSHA applies in workplaces where loading or unloading, cranes, forklifts, and rigging are used. Relevant standards include:

- **29 CFR 1910.178**  
Powered Industrial Trucks.
- **29 CFR 1910.179**  
Overhead and Gantry Cranes.
- **29 CFR 1910.180**  
Truck Cranes.
- **29 CFR 1926.251**  
Rigging Equipment for Material Handling.
- **29 CFR 1926.1400 Subpart CC**  
Cranes and Derricks in Construction.
- **29 CFR Part 1918**  
Longshoring Operations.

## How-to steps: Actions to prevent injuries

Here are specific step-by-step practices employees can follow. These apply whether you are loading trucks, using forklifts, operating cranes, or working on docks.

Step	What to do	Why it's important
<b>1. Plan the load before you begin.</b>	Estimate weight, shape, and center of gravity. Choose the right vehicle or equipment (truck, trailer, forklift, crane) and make sure it can carry the load safely.	Prevents overloading, ensures equipment won't tip, fail, or become hard to control.
<b>2. Use proper equipment.</b>	Use tie-downs, chains, straps, nets, chocks, or bracing rated for the weight of the cargo. Use edge protection when straps touch sharp edges.	Reduces risk of strap breakage or cutting, and prevents slipping.
<b>3. Secure the load evenly.</b>	Distribute weight evenly front-to-back and side-to-side. Fill gaps with dunnage or blocking to prevent shifting. Use friction mats underneath when possible.	Keeps the center of gravity stable; prevents the load from tipping or moving.
<b>4. Use multiple tie-downs.</b>	Apply enough tie-downs as required by the load type and regulations. For example, FMCSA often requires more than one tie-down for large, heavy, or unstable items.	Multiple points reduce stress on any single tie-down and help prevent cargo movement in any direction.
<b>5. Check tightness and attachment.</b>	Make sure tie-downs are tight and properly attached to anchor points. Inspect anchor points for damage or wear.	Loose or weak anchor points may fail in transit or during lifting operations.
<b>6. Inspect gear before and during use.</b>	Before use check straps, chains, hooks, and braces for cuts, fraying, rust, distortion, or other damage. During transit or handling, stop frequently (for example, after first 50 miles, after rough roads, after loading or unloading) and re-inspect	Early detection of damage prevents failures on the road or worksite.
<b>7. Follow regulations and load-type rules.</b>	Know the rules for your load. Metal coils, paper rolls, logs, etc., often have special requirements (more tie-downs, center of gravity control, edge protection). Follow FMCSA 49 CFR Part 393, Subpart I and OSHA rules depending on your environment.	Ensures compliance and provides proven safe methods for challenging loads.
<b>8. Make sure visibility and clearances are maintained.</b>	Loads must not block driver's view or access to exits. Keep load height within clearance limits (low bridges, tunnels, warehouse ceilings, overhead cranes).	Prevents accidents like hitting overhead obstructions or inability to escape in emergencies.
<b>9. Maintain work area cleanliness.</b>	Keep floors and docks dry and free of obstacles. Ensure equipment (forklifts, cranes) has good footing and stable surfaces.	Reduces slips, trips, falls, and prevents cargo from being knocked loose by shifting equipment.
<b>10. Provide and participate in regular training.</b>	Supervisors and front-line workers should train on loading techniques, securement best practices, how to use inspections, and required regulations. Refresh training when rules change, when new load types or equipment are introduced, or when incidents occur.	A well-trained workforce catches hazards early and prevents errors from becoming accidents.



## Cargo securement safety checklist

### Before loading:

- Plan the load: know weight, shape, and center of gravity.
- Choose the right vehicle or equipment (truck, trailer, forklift, crane).
- Clear the work area (keep floors, docks, and yards dry and clutter-free).

### During loading:

- Use proper securement equipment (chains, straps, ropes, nets, blocking, bracing).
- Make sure all equipment is rated for the weight of the cargo.
- Place edge protection where tie-downs touch sharp corners.
- Distribute weight evenly front to back and side to side.
- Use dunnage, chocks, or friction mats to prevent shifting or sliding.
- Confirm cargo does not block driver's view or emergency exits.

### After loading / before moving:

- Use enough tie-downs based on cargo size and weight.
- Tighten tie-downs and check anchor points for strength.
- Make sure cargo is immobilized in all directions (forward, backward, sideways, upward).

### During transit or handling:

- Re-inspect load after the first 50 miles (for trucks) or after the first lift/move (for cranes, forklifts, longshore operations).
- Recheck securement at regular intervals or when conditions change (rough roads, bad weather, unloading/reloading).
- Stop immediately if you notice straps, chains, or anchor points loosening.

### Ongoing practices:

- Remove damaged or worn equipment from service.
- Follow FMCSA and OSHA cargo securement regulations for your industry and cargo type.
- Get regular training on loading, unloading, and securement procedures.
- Report hazards, unsafe loads, or damaged gear right away.



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