

EHS CONCEPTS

THE \$49.9 BILLION TOP 10

The ten injuries that cost U.S. employers the most, and the small-shop fixes that stop them. A free field guide.

Ryan L. Rinehart

Retired Navy Veteran · Navy Safety Technician (NEC 9571) · Navy Rescue Swimmer · 19+ years in EHS
Author of Safe on Purpose and No License to Lead

Keep your people whole.

FROM RYAN

Your most expensive injury is already on the schedule

The examples in this letter (the pallet, the wet dock, the van, the parts bin) are composites to show the pattern, not reports of real events.

Most of the injuries that wreck a small company's year are not freak events. They are the pallet that gets hand-stacked because the lift table is broken. The dock plate that is always wet at shift change. The van driver answering dispatch texts at 60 miles an hour. The parts bin that sits on the floor, so someone bends to it 400 times a shift.

Liberty Mutual's 2026 Workplace Safety Index puts a price on that pattern. Serious workplace injuries, the kind that keep someone off work for more than five days, cost U.S. employers \$58.7 billion in direct costs in 2023. Ten causes made up \$49.9 billion of it, about 85%. The top two, overexertion from handling objects and falls on the same level, have held the top two spots in every edition of the Index.

That last part matters. The list barely moves because the conditions barely move. Lifting, walking surfaces, vehicles, and storage are designed, bought, scheduled, and funded by leaders. Workers make choices inside the conditions we build.

For each of the ten you get the pain point, what the data says, the root causes, the rules in plain words with tags, fixes a small or mid-size shop can afford, a printable self-audit, and one question to start a toolbox talk.

Do not try to fix ten things this month. Pull your last three years of claims, find your top two, and start there. Then do the next one.

Ryan L. Rinehart

Founder, EHS Concepts — The Ways of Safety

Keep your people whole.



EHS CONCEPTS
— THE WAYS OF SAFETY —

THE VERIFIED NUMBERS

What serious injuries cost U.S. employers

\$58.7B

Direct cost of serious, nonfatal workplace injuries and illnesses in 2023 (more than 5 days away from work)

\$49.9B

Cost of the top 10 causes, about 85% of the total

\$13.1B

No. 1, overexertion involving outside sources: 26% of the top-10 cost

\$18.9B

All three fall and slip types combined (same level, lower level, slip or trip without a fall): about 38% of the top-10 cost*

\$17.9B

All three exertion types combined (overexertion, other exertions, repetitive microtasks): about 36% of the top-10 cost*

\$1.1B

Average direct cost per week across the year ($\$58.7B \div 52$)*

Source: Liberty Mutual Workplace Safety Index 2026, as reported with the full top-10 list by Safety+Health (National Safety Council), Sept. 28, 2026. We could not check these figures against Liberty Mutual's own 2026 report. Method (Liberty Mutual): BLS nonfatal injury data are combined with Liberty Mutual claim data to find events that kept workers off more than five days, ranked by workers' compensation medical and lost-wage cost, then scaled to the National Academy of Social Insurance total. Each Index uses data from three years earlier. Costs are direct costs only; indirect costs (overtime, hiring, lost production) are not included. * Rows marked with an asterisk are EHS Concepts calculations from the published figures.

The ten costliest injury causes in this guide

	CAUSE	2023 DIRECT COST AND SHARE OF THE TOP 10*	FAMILY
1	Overexertion involving outside sources	\$13.1B · 26% (lifting, pushing, pulling, holding, carrying, throwing)	Exertion
2	Falls on the same level	\$9.9B · about 20%	Falls and slips
3	Struck by object or equipment	\$6.2B · about 12%	Struck
4	Falls to a lower level	\$5.2B · about 10%	Falls and slips
5	Slip or trip without a fall	\$3.8B · about 8%	Falls and slips
6	Other exertions or bodily reactions	\$3.23B · about 6% (bending, reaching, twisting, climbing, kneeling)	Exertion
7	Roadway incidents involving motorized land vehicles	\$3.22B · about 6%	Vehicle
8	Struck against object or equipment	\$1.79B · about 4%	Struck
9	Intentional injury by person	\$1.75B · about 4%	Violence
10	Repetitive motions involving microtasks	\$1.6B · about 3%	Exertion

Order and dollar figures are Liberty Mutual's. Percentages other than the 26% for No. 1 are EHS Concepts calculations against the \$49.9B top-10 total and are rounded. Category descriptions for No. 1 and No. 6 follow Liberty Mutual's definitions in earlier editions of the Index.

BEFORE THE CAUSES

The five basics that sit under all ten

<u>OSH Act Sec. 5(a)(1)</u> General Duty Clause · BOTH · final	Keep the workplace free of recognized hazards likely to cause death or serious harm. There is no OSHA ergonomics or workplace violence standard; OSHA uses this clause for both.
<u>29 CFR 1910.22</u> Walking-working surfaces · GI · final	Clean, orderly, dry where feasible, free of hazards. Inspect regularly. Fix or guard a hazard before anyone uses the surface again.
<u>29 CFR 1904.7 and 1904.39</u> Recordkeeping and reporting · BOTH · final	Record cases with days away on the OSHA 300 Log and count the days. Report a death within 8 hours; an in-patient hospitalization, amputation, or loss of an eye within 24 hours.
<u>OSH Act Sec. 11(c)</u> Anti-retaliation · BOTH · final	You may not punish a worker for reporting an injury or a hazard. A reporting system that scares people off hides your most expensive problems until they are claims.
<u>NIOSH Lifting Equation</u> Revised (RNLE) · GUIDANCE	A free method to score a lift. It starts from 51 lb under ideal conditions and reduces for reach, height, travel, twist, frequency, and grip. NIOSH recommends a Lifting Index of 1.0 or lower.

Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Ten-minute foundation check

#	CHECK	YES	NO
1	We pulled the last three years of claims and know our top three causes by cost, not by count.	☐	☐
2	Every case with days away is on the 300 Log, with days counted.	☐	☐
3	Workers can report an injury or hazard without discipline, and we can show one recent report that got fixed.	☐	☐
4	Walking surfaces are inspected on a schedule, and the last inspection is written down.	☐	☐
5	We have scored at least one heavy or frequent lift with the NIOSH equation or a similar tool.	☐	☐
6	Someone with authority reviews claim costs with supervisors at least quarterly.	☐	☐
7	Our insurer's loss-control service has been asked to visit in the last year.	☐	☐
8	Return-to-work duty exists in writing before the next injury happens.	☐	☐

HOW TO USE THIS GUIDE

Walk it. Score it. Own it.

1. Start with your top claim cause by cost, not the one at the top of this list. Your carrier or broker can give you a loss run.
2. Print the self-audit page. Walk one area, one job, or one crew. Thirty minutes.
3. Score what you can see or put your hand on, not what the binder says. If the file and the field disagree, the file is wrong until the field changes.
4. Every “No” gets one owner and one date before you leave the area.
5. Walk it again in 30 days. A fix that is not verified is a wish.

Spotlight: fewer injuries, bigger bills

THE PAIN POINT **A company goes two years without a lost-time case and cuts the ergonomics budget. The next shoulder surgery costs more than the budget it saved.**

(illustrative)

In its 2025 release, Liberty Mutual reported that “the rate of serious workplace accidents fell by about 40 percent over the 25 years represented by the Index,” while total workers' compensation benefit costs rose by 30% (BLS and NASI data).

Fewer injuries, more expensive ones. A low count is not the same as low risk. Watch the exposures that drive cost (heavy lifts, walking surfaces, vehicles) even when the log is quiet.

- ☐ We track claim cost per case, not just case count.
- ☐ We know the three jobs with the heaviest or most frequent lifts, whether or not anyone has been hurt there yet.

USE THIS EVERY TIME

When you find a gap: the eight-step response

1. Stop or contain.	If the gap is live (a lift no one should be making, an open edge, a blocked aisle under a loaded rack, a driver on the phone), stop that task now. Anyone can call it. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.
2. Fix the condition first.	Clean it, guard it, move it, lower it, or add the equipment. Then fix the paperwork so it says what is true.
3. Find the decision that allowed it.	Ask what made the condition normal: a broken lift table nobody funded, a rate that leaves no time for the second person, a vendor's pallet height, a dispatch habit. Do not stop at "they should have known."
4. One owner. One date.	One name, not a department. One date, not "ASAP."
5. Verify in the field.	The owner shows the fix at the job. Re-check in 30 days.
6. Look sideways.	If it is on one line, one truck, or one shift, check the others this week.
7. Protect the person who raised it.	Thank them and tell them what changed. Retaliation for reporting an injury or hazard is illegal under Section 11(c) of the OSH Act.
8. Get help when you need it.	OSHA's On-Site Consultation Program is free, confidential, and separate from enforcement for small and mid-size employers (osha.gov/consultation). Your workers' comp carrier's loss-control staff are also a free resource.

Leaders own the conditions. Workers make choices inside the conditions we build. When a gap shows up, the first question is not "who did it?" It is "what did we build, fund, schedule, or tolerate that made this normal?"

This guide is a practical summary for planning and self-audit. It is not legal, medical, or insurance advice and does not replace the text of OSHA, FMCSA, or state rules, or your insurer's requirements. State-plan states may have different or additional rules. Regulatory text is paraphrased. When this guide and a regulation disagree, the regulation controls. Cost figures are national estimates of direct costs and will not match any one company's losses.

01 Overexertion: lifting, pushing, pulling, carrying

OSH Act 5(a)(1) [BOTH] · NIOSH Lifting Equation [GUIDANCE] · 1910.178(l) [GI]

\$13.1B

direct cost in 2023, the No. 1 cause

26%

of the top-10 cost

No. 1

in every edition of the Index, 2001 to 2026

THE PAIN POINT The lift table on line 2 broke in March. Nobody funded the repair, so the crew hand-stacks 40-pound cases to shoulder height all shift. In August, the best operator on the line has back surgery. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Overexertion involving outside sources cost U.S. employers about \$13.1 billion in direct costs in 2023, 26% of the top-10 total. Liberty Mutual defines it as injuries from lifting, pushing, pulling, holding, carrying, or throwing objects. It has ranked No. 1 in every edition of the Index since 2001. The 2025 Index put it at \$13.7 billion (2022 data).

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Loads, pallet heights, and case weights are set by purchasing and vendors, not by the people who lift them.
- Lift assists exist but are slow, broken, or too far away, so the rate wins.
- Production rates were set with no time for a second person or the hoist.
- Training teaches “lift with your legs” instead of redesigning the lift.
- Early soreness goes unreported because people fear discipline or losing hours, so a strain becomes a surgery.

REQUIREMENTS AND CONTROLS · OVEREXERTION: LIFTING, PUSHING, PULLING, CARRYING

What the rules require, in plain words

OSH Act 5(a)(1) · BOTH · final	There is no OSHA ergonomics standard. OSHA cites ergonomic hazards under the General Duty Clause when the hazard exists, is recognized, is causing or likely to cause serious harm, and a feasible fix exists.
OSHA ergonomics FAQ · GUIDANCE	OSHA has no standard limiting the maximum weight a worker may lift or carry (March 29, 2004 interpretation letter, listed on OSHA's ergonomics FAQ page). That does not make any weight acceptable; it means you have to judge the task.
NIOSH Lifting Equation · GUIDANCE	Starts at 51 lb for an ideal lift and reduces it for reach, height, travel distance, twist, frequency, and grip. A Lifting Index above 1.0 means the task needs a fix.
1910.178(l) · GI · final	If the fix is a forklift, pallet jack, or other powered truck, operators must be trained and evaluated before they drive it, with an evaluation at least every three years.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Stop the lift. Ask vendors to ship lighter cases or deliver at working height. Use gravity: roller conveyor, chutes, slides.
Engineer	Lift tables, scissor lifts, vacuum lifters, carts with big wheels, adjustable-height pallet positioners. Keep loads between knee and shoulder height.
Administrative	Two-person or hoist rule above a weight your team sets from the NIOSH score. Rotate heavy tasks. Build lift-assist time into the rate.
Early reporting	Ask about soreness weekly. Early reports with no penalty are cheaper than claims.
Small-shop fix	Raise the bottom pallet: an empty pallet or a \$150 spring-loaded positioner puts the load in the safe zone. Fix the broken lift table this week and log who approved the spend.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

01 · Overexertion: lifting, pushing, pulling, carrying

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Heaviest three manual lifts in this area are known by weight and frequency.	☐	☐	☐	
2	At least one of them has a NIOSH Lifting Index score on file.	☐	☐	☐	
3	Loads are picked between knee and shoulder height, or a fix is scheduled.	☐	☐	☐	
4	Lift assists are present, working, and within a few steps of the task.	☐	☐	☐	
5	Operators use the lift assist when you watch (ask why if not).	☐	☐	☐	
6	No case or bag over the site's set limit is hand-lifted alone.	☐	☐	☐	
7	Carts and pallet jacks roll freely; wheels and floors are in good repair.	☐	☐	☐	
8	Production rate includes time to use the assist or get a second person.	☐	☐	☐	
9	Workers can name how to report soreness, and say they would.	☐	☐	☐	
10	Powered-truck operators doing handling work have current evaluations.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any "No" that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · OVEREXERTION: LIFTING, PUSHING, PULLING, CARRYING

Who owns it

Owner / GM	Funds lift assists and approves vendor packaging changes.
Operations manager	Sets rates that include assist time. Signs for any deferral of a broken assist.
Supervisor	Removes a broken assist from service and escalates the same shift.
Workers	Report soreness early. Have the right to stop a lift that is not safe.
Safety lead	Scores lifts, tracks claim cost, and checks fixes in 30 days.

How to verify it is working in the field

- Score your heaviest lift with the NIOSH equation before and after the fix.
- Watch one full shift hour. Count how many lifts happen below the knee or above the shoulder.
- Pull 12 months of strain claims by job. Re-check the same jobs in six months.

TOOLBOX TALK STARTER

Which lift in this area do you dread at the end of a shift, and what would make it go away?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If a broken assist is forcing manual lifts, tag it out, move the task or add a second person now, and write the work order before you leave. Ask who decided it could stay broken. Then run the eight-step gap response at the front of this guide.

02 Falls on the same level

1910.22 [GI] · 1926.25 [CON] · 1910.176(c) [GI]

\$9.9B

direct cost in 2023

~20%

of the top-10 cost*

No. 2

in every edition of the Index, 2001 to 2026

THE PAIN POINT The dock plate is wet every morning from the wash-down. Everyone knows. A mat was ordered once. The receiver who slips at 6:10 a.m. breaks a wrist and is out for ten weeks. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Falls on the same level (slipping or tripping and falling on the same surface) cost about \$9.9 billion in 2023, roughly 20% of the top-10 total. It has been No. 2 in every edition of the Index. The 2025 Index put it at \$10.5 billion. Add slips and trips without a fall (No. 5) and falls to a lower level (No. 4), and the three walking-and-falling causes total about \$18.9 billion, the largest family on the list.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Wet processes, wash-downs, and weather tracked in at doors are known and scheduled, but drainage and mats are not.
- Housekeeping is “everyone’s job,” so nobody owns the floor at shift change.
- Floor repairs wait for a shutdown that keeps moving.
- Lighting is poor at docks, stairs, and parking lots, where people walk fastest.
- Cords, hoses, and pallets live in walkways because there is no other place for them.

REQUIREMENTS AND CONTROLS · FALLS ON THE SAME LEVEL

What the rules require, in plain words

1910.22(a) · GI · final	Keep every walking surface clean and orderly, the floor dry where feasible, and free of hazards such as leaks, spills, snow, and ice. Where wet processes are used, keep drainage working and provide dry standing places such as mats or platforms.
1910.22(d) · GI · final	Inspect walking surfaces regularly. Fix a hazard before anyone uses the surface again, or guard it until it is fixed.
1910.176(c) · GI · final	Keep storage areas free of material that creates a tripping hazard.
1926.25(a) · CON · final	On construction sites, keep scrap and debris cleared from work areas, passageways, and stairs.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Fix the leak, the drain, or the process that puts liquid on the floor. Move wash-downs away from shift change.
Engineer	Drainage, grating, anti-slip coatings, entrance matting long enough for several steps, better lighting, cord covers or overhead drops.
Administrative	A named floor owner per area per shift. Spill kits at known wet spots. Snow and ice plan with times and names.
Footwear	Slip-resistant shoes are a smart company policy. Note: OSHA's foot protection rule (1910.136) covers falling, rolling, and piercing hazards and electrical hazards, not slipping, so this is your call to make and fund.
Small-shop fix	Walk the site at shift change with a phone. Photograph every wet spot and trip point. Put one name on each. Fix the top three this week.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

02 · Falls on the same level

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Floors in this area are dry, or wet areas have working drains and dry standing places.	☐	☐	☐	
2	No leaks from equipment, roof, or piping are reaching the floor.	☐	☐	☐	
3	Entrance mats are flat, long enough, and not curled.	☐	☐	☐	
4	Walkways are clear of cords, hoses, pallets, and product.	☐	☐	☐	
5	Damaged flooring, holes, or uneven joints are fixed or guarded.	☐	☐	☐	
6	Lighting is adequate at docks, stairs, ramps, and outside paths.	☐	☐	☐	
7	Spill kits are stocked and near known wet spots.	☐	☐	☐	
8	There is a written inspection of walking surfaces with a recent date.	☐	☐	☐	
9	A named person owns the floor in this area on each shift.	☐	☐	☐	
10	Snow and ice removal has an owner and a start time before shift.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · FALLS ON THE SAME LEVEL

Who owns it

Owner / GM	Funds drainage, lighting, and floor repair instead of waiting for the shutdown.
Maintenance lead	Fixes leaks and floor damage; keeps the repair log.
Supervisor	Owens the floor on the shift; stops work around a spill until it is cleaned.
Workers	Report and clean spills; flag hazards; have the right to stop.
Safety lead	Runs the walking-surface inspection and trends slip claims by location.

How to verify it is working in the field

- Map the last two years of same-level fall claims on a site drawing. Re-walk the top three spots at shift change.
- Check the inspection log date against the floor you are standing on.
- Ask a worker where the floor is always wet. If they answer right away, it is not fixed.

TOOLBOX TALK STARTER

Where on this site do you slow down or change how you walk, and why?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If a hazard cannot be fixed now, guard it: cone it off, mat it, or close the path. Then write the work order and put one name and date on it. Then run the eight-step gap response at the front of this guide.

03 Struck by object or equipment

1910.28(c), 1910.135, 1910.176(b), 1910.178(m), 1910.212 [GI] · 1926.100 [CON]

\$6.2B

direct cost in 2023

~12%

of the top-10 cost*

No. 3

in the 2026 Index

THE PAIN POINT A carton slides off the top of an overloaded rack bay that was never rated for that product. It hits a picker on the shoulder. The rack was “temporary” for two years. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Being struck by an object or equipment cost about \$6.2 billion in 2023, roughly 12% of the top-10 total and No. 3 on the list. Typical events include falling or dropped objects, swinging loads, flying parts, and moving equipment.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Storage grows faster than racking, so product gets stacked higher and looser than the system was built for.
- Pedestrians and powered trucks share the same aisles with no separation.
- Overhead work happens above open walkways with no barricade or toe board.
- Machine guards are missing or bypassed to clear jams faster.
- Damaged rack uprights stay in service because no one owns rack inspection.

REQUIREMENTS AND CONTROLS · STRUCK BY OBJECT OR EQUIPMENT

What the rules require, in plain words

1910.176(b) · GI · final	Storage must not create a hazard. Stack, block, interlock, and limit the height of tiered material so it cannot slide or collapse.
1910.28(c) · GI · final	When workers are exposed to falling objects, they wear head protection, and you also use toe boards, screens, guardrails, canopies, or barricades to keep objects from falling on people.
1910.135(a)(1) · GI · final · 1926.100(a) · CON · final	Hard hats where there is a potential for head injury from falling objects (GI), or from impact or falling or flying objects (CON).
1910.178(m)(2) · GI · final	No one may stand or pass under the raised forks or load of a powered industrial truck, loaded or empty.
1910.212(a)(1) · GI · final	Guard machines to protect the operator and others from hazards including flying chips and sparks.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Lower the storage. Put heavy and loose items on bottom levels. Remove top-tier storage over walkways.
Engineer	Rack netting or back-stops, wire decking, toe boards, column protectors, physical barriers between people and trucks, machine guards with interlocks.
Administrative	Rack inspection with a named owner; damaged uprights unloaded until repaired. Pedestrian-only zones and crossings. No-go zones under overhead work.
PPE	Hard hats and eye protection where objects can fall or fly. PPE is the last layer, not the plan.
Small-shop fix	Paint or tape pedestrian lanes and crossings this week, and add a physical barrier at the busiest crossing. Pull the top tier off any rack bay above a walkway.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

03 · Struck by object or equipment

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Stacked material is stable, blocked or interlocked, and within height limits.	☐	☐	☐	
2	Rack load ratings are posted and product matches them.	☐	☐	☐	
3	No damaged, bent, or unanchored rack uprights are loaded.	☐	☐	☐	
4	Top-tier storage over walkways has netting, back-stops, or is removed.	☐	☐	☐	
5	Pedestrian lanes and crossings are marked, and separated by a barrier at busy points.	☐	☐	☐	
6	No one walks or stands under raised forks or loads (watch for five minutes).	☐	☐	☐	
7	Overhead work areas are barricaded below, with toe boards where needed.	☐	☐	☐	
8	Machine guards are in place and not bypassed.	☐	☐	☐	
9	Hard hats and eye protection are worn where the hazard assessment calls for them.	☐	☐	☐	
10	Rack damage reports go to a named person who acts the same day.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · STRUCK BY OBJECT OR EQUIPMENT

Who owns it

Owner / GM	Funds racking that fits the volume instead of stacking higher.
Warehouse / operations manager	Owens rack inspection, load ratings, and traffic plan.
Supervisor	Unloads a damaged bay and stops traffic under raised loads.
Workers and drivers	Report rack damage and near misses; have the right to stop.
Safety lead	Reviews struck-by near misses monthly and audits the traffic plan.

How to verify it is working in the field

- Stand at the busiest crossing for 10 minutes. Count truck-pedestrian conflicts before and after the fix.
- Check three rack uprights at forklift height for damage. Compare with the last inspection record.
- Ask a driver where the near misses happen. Then go look.

TOOLBOX TALK STARTER

What in this area is above someone's head right now that should not be there?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If a rack bay is damaged or overloaded, unload it and block the aisle below it now. If a guard is missing, lock out the machine. Write the order and name the owner before you leave. Then run the eight-step gap response at the front of this guide.

04 Falls to a lower level

1910.23, 1910.28(b), 1910.30 [GI] · 1926.501, 1926.503, 1926.1053 [CON]

\$5.2B

direct cost in 2023

~10%

of the top-10 cost*

4 ft / 6 ft

general industry / construction fall
protection triggers

THE PAIN POINT Maintenance changes a light on the mezzanine edge from the top of a stepladder because the lift is in the other building. It is a five-minute job. The fall is seven feet. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Falls to a lower level cost about \$5.2 billion in 2023, roughly 10% of the top-10 total and No. 4 on the list. Falls from ladders, docks, mezzanines, roofs, trucks, and stairs all count here.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Short jobs at height are treated as too quick to set up protection.
- The right equipment (a lift, a platform ladder, a guardrail) is not where the work is.
- Dock edges and mezzanine gates are left open for convenience.
- Ladders are damaged, the wrong type, or the wrong height, and no one inspects them.
- Training happened once, years ago, and never covered this site's edges.

REQUIREMENTS AND CONTROLS · FALLS TO A LOWER LEVEL

What the rules require, in plain words

1910.28(b)(1) · GI · final	Protect each worker on an unprotected side or edge 4 feet or more above a lower level with guardrails, safety nets, or personal fall protection.
1910.28(b)(3) · GI · final	Protect workers from holes (including skylights) 4 feet or more above a lower level with covers, guardrails, or fall protection; holes under 4 feet need covers or guardrails so no one steps in.
1910.23(b)(9)–(13) · GI · final	Inspect ladders before first use each shift; tag and remove defective ones; face the ladder, keep at least one hand on it, and do not carry a load that could cause a fall.
1926.501(b)(1) · CON · final	On construction work, protect workers on unprotected sides and edges 6 feet or more above a lower level.
1910.30 · GI · final · 1926.503(a) · CON · final	Train exposed workers to recognize fall hazards and use the protection, by a qualified (GI) or competent (CON) person, and retrain when things change.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Do the work from the ground: lowering light fixtures, extension tools, relocating valves and gauges.
Engineer	Permanent guardrails, self-closing mezzanine gates, dock edge barriers, skylight screens, hole covers marked and secured.
Equipment	Platform ladders and rolling work platforms in place of stepladders; aerial lifts where reach requires it.
Administrative	No work at an unprotected edge without a plan. Ladder inspection with a named owner. Pre-task check for any job above 4 feet.
Small-shop fix	Buy one platform ladder for each building and retire the worst stepladder today. Install a self-closing gate at the mezzanine.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

04 · Falls to a lower level

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Every edge 4 feet or more above a lower level has a guardrail or other protection (6 feet in construction).	☐	☐	☐	
2	Mezzanine and loading gates are closed or self-closing.	☐	☐	☐	
3	Floor holes and skylights are covered or guarded, and covers are marked.	☐	☐	☐	
4	Dock edges have barriers or a system that keeps people back when no trailer is present.	☐	☐	☐	
5	Ladders are inspected before use and damaged ones are tagged and removed.	☐	☐	☐	
6	Stepladders are not used as straight ladders or stood on the top cap.	☐	☐	☐	
7	A platform ladder or lift is available where high work is routine.	☐	☐	☐	
8	Workers who use fall protection were trained, and training records exist.	☐	☐	☐	
9	Fall arrest gear (if used) is inspected and has a clear anchor point.	☐	☐	☐	
10	Workers can explain the plan for the last job done above 4 feet.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · FALLS TO A LOWER LEVEL

Who owns it

Owner / GM	Funds guardrails, gates, and the right access equipment.
Maintenance lead	Owns ladder inventory and inspection; plans high work before it starts.
Supervisor	Stops edge work without protection; confirms gates are closed.
Workers	Inspect ladders, refuse a damaged one, and have the right to stop.
Safety lead	Maps every edge and hole on site and audits them quarterly.

How to verify it is working in the field

- Walk the site and list every edge, hole, and dock. Mark each protected or not.
- Inspect every ladder on site in one sweep. Count tagged versus in service.
- Ask a maintenance tech how the last high job was done, step by step.

TOOLBOX TALK STARTER

What was the last job you did above four feet, and what would have caught you?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If an edge or hole is open, barricade it or stand someone at it now. Remove a damaged ladder from service on the spot. Then name the owner and date for the permanent fix. Then run the eight-step gap response at the front of this guide.

05 Slip or trip without a fall

1910.22(a) [GI] · 1910.176(a), (c) [GI] · 1926.25 [CON]

\$3.8B

direct cost in 2023

~8%

of the top-10 cost*

No. 5

in the 2026 Index

THE PAIN POINT A tech catches his boot on a hose across the aisle, catches himself on a rack, and tears a shoulder. He never hit the floor, so the near miss was never logged.

(illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Slips or trips without a fall cost about \$3.8 billion in 2023, roughly 8% of the top-10 total and No. 5 on the list. The person does not hit the ground, but the twist, catch, or grab to stay up causes the injury, often to a back, knee, or shoulder.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- These events rarely get reported as near misses, so the hazard stays.
- Hoses, cords, and pallets cross walkways because there is no overhead drop or storage spot.
- Small level changes (thresholds, drains, dock plates, curbs) are not marked.
- People are carrying loads that block their view of the floor.
- Rushing at shift change or to meet a truck window.

REQUIREMENTS AND CONTROLS · SLIP OR TRIP WITHOUT A FALL

What the rules require, in plain words

1910.22(a)(1)–(3) · GI · final	Keep walking surfaces clean, orderly, dry where feasible, and free of hazards such as protruding objects, loose boards, and spills.
1910.176(a) · GI · final	Keep aisles and passageways clear and in good repair, with no obstruction that could create a hazard; mark permanent aisles.
1910.176(c) · GI · final	Keep storage areas free of material that creates tripping hazards.
1926.25(a) · CON · final	Keep construction work areas, passageways, and stairs clear of debris.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Route hoses and cords overhead or under covers. Remove unused thresholds. Fix drains flush with the floor.
Engineer	Hose reels, cord drops, ramps instead of single steps, contrast paint on level changes, good lighting.
Administrative	Count near-miss trips as reportable. Clear-aisle standard at shift end. Carry loads by cart when they block your view.
Footwear and pace	Slip-resistant footwear policy; schedules that do not force running to meet a truck.
Small-shop fix	Buy hose reels for the three most-used air and water lines this month. Paint every single step and threshold yellow.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

05 · Slip or trip without a fall

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	No hoses or cords cross walkways without a cover or overhead route.	☐	☐	☐	
2	Single steps, thresholds, and level changes are marked with contrast paint or tape.	☐	☐	☐	
3	Aisles are clear and marked; nothing is staged in them.	☐	☐	☐	
4	Dock plates and drains are flush and secure.	☐	☐	☐	
5	Floor surfaces are free of loose boards, holes, and broken concrete.	☐	☐	☐	
6	Lighting is adequate to see the floor in every walkway.	☐	☐	☐	
7	Loads carried by hand do not block the carrier's view of the floor.	☐	☐	☐	
8	Near-miss trips are reported, and the last one was acted on.	☐	☐	☐	
9	Stairs have handrails and the treads are in good condition.	☐	☐	☐	
10	End-of-shift clear-aisle check is done and signed.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any "No" that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · SLIP OR TRIP WITHOUT A FALL

Who owns it

Owner / GM	Funds hose reels, ramps, and floor repairs.
Maintenance lead	Routes utilities off the floor; fixes level changes.
Supervisor	Runs the end-of-shift aisle check; acts on near-miss reports.
Workers	Report near-miss trips; keep aisles clear; have the right to stop.
Safety lead	Tracks trip near misses as leading indicators.

How to verify it is working in the field

- Count near-miss trip reports for the last quarter. Zero usually means nobody reports, not nobody trips.
- Walk every marked aisle at mid-shift and photograph anything in it.
- Re-check three marked level changes in 30 days for wear.

TOOLBOX TALK STARTER

Where did you last catch your foot on something here, even if nothing happened?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

Clear or cover the hazard now. If a hose or cord has to stay, cover it and mark it. Put a name and date on the permanent route. Then run the eight-step gap response at the front of this guide.

06 Other exertions: bending, reaching, twisting, climbing, kneeling

OSH Act 5(a)(1) [BOTH] · 1910.23(b)(11)–(13) [GI] · OSHA and NIOSH ergonomics guidance [GUIDANCE]

\$3.23B

direct cost in 2023

~6%

of the top-10 cost*

No. 6

in the 2026 Index

THE PAIN POINT The parts bin sits on the floor under the bench. Each assembler bends to it hundreds of times a shift. The first knee and back claims come from the two newest people on the line. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Other exertions or bodily reactions cost about \$3.23 billion in 2023, roughly 6% of the top-10 total. Liberty Mutual defines the category as injuries from motions like bending, reaching, twisting, climbing, crawling, kneeling, sitting, standing, walking, and running, without handling an outside object.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Workstations are built to fit the equipment, not the person.
- Bins, controls, and tools sit below the knee or above the shoulder because that is where they fit.
- Maintenance access requires crawling or kneeling because no one planned for it at install.
- Standing on hard floors all shift with no anti-fatigue mats or sit-stand options.
- New workers are thrown into full rates before their bodies adjust.

REQUIREMENTS AND CONTROLS · OTHER EXERTIONS: BENDING, REACHING, TWISTING, CLIMBING, KNEELING

What the rules require, in plain words

OSH Act 5(a)(1) · BOTH · final	No ergonomics standard exists. OSHA cites recognized ergonomic hazards that cause or are likely to cause serious harm under the General Duty Clause when a feasible fix exists.
1910.23(b)(11)–(13) · GI · final	Climbing ladders: face the ladder, keep at least one hand on it, and do not carry anything that could make you lose balance.
OSHA ergonomics guidelines · GUIDANCE	OSHA has industry guidelines (meatpacking, poultry, grocery, nursing homes, shipyards, foundries). They are advisory and not a basis for citations, but they show what OSHA considers a recognized hazard and a feasible fix.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Move the task into the safe zone: bins and tools between knee and shoulder, controls within easy reach.
Engineer	Tilt tables, bin risers, adjustable benches, sit-stand stools, anti-fatigue mats, kneeling pads and creepers for low work, step platforms.
Administrative	Job rotation between postures. Gradual ramp-up for new hires. Micro-breaks for sustained kneeling or reaching.
Design-in	Add reach and access to every equipment purchase and layout change before it is installed.
Small-shop fix	Put the floor bins on a \$40 riser this week. Ask each crew to name the one reach or bend they hate most, and fix the top one.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

06 · Other exertions: bending, reaching, twisting, climbing, kneeling

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Frequently used parts, tools, and controls are between knee and shoulder height.	☐	☐	☐	
2	No task requires sustained kneeling without pads or a seat.	☐	☐	☐	
3	Workers who stand all shift have anti-fatigue mats or footwear and a place to sit on breaks.	☐	☐	☐	
4	Benches and stations adjust, or match the people who use them.	☐	☐	☐	
5	Reaches over a bench or into a bin do not require leaning or twisting.	☐	☐	☐	
6	Maintenance access points can be reached without crawling, or have creepers and pads.	☐	☐	☐	
7	New hires have a ramp-up schedule.	☐	☐	☐	
8	Workers have been asked which postures hurt, in the last six months.	☐	☐	☐	
9	Ladder climbing is done facing the ladder with a hand free.	☐	☐	☐	
10	Equipment purchases include an ergonomics check before approval.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · OTHER EXERTIONS: BENDING, REACHING, TWISTING, CLIMBING, KNEELING

Who owns it

Owner / GM	Approves small ergonomic purchases without a long approval chain.
Engineering / maintenance	Designs stations and access around the worker.
Supervisor	Runs ramp-up for new hires and rotation.
Workers	Name the postures that hurt; suggest fixes; have the right to stop.
Safety lead	Keeps a list of posture fixes and checks results in 30 days.

How to verify it is working in the field

- Film one cycle of the worst job (with permission). Count bends and reaches before and after the fix.
- Ask the newest person on the line which motion hurts most after the first week.
- Compare body-part claims (knee, back, shoulder) by job over 12 months.

TOOLBOX TALK STARTER

What is the one reach, bend, or kneel in your job you would get rid of if you could?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

Move the part, bin, or control now if you can. If not, rotate the task until the fix is in. Name the owner and the date. Then run the eight-step gap response at the front of this guide.

07 Roadway incidents

49 CFR 392.80, 392.82 [FMCSA] · 1926.601(b) [CON] · OSH Act 5(a)(1) [BOTH] · OSHA/NHTSA/NETS guidelines [GUIDANCE]

\$3.22B

direct cost in 2023

~6%

of the top-10 cost*

No. 7

in the 2026 Index

THE PAIN POINT Dispatch texts the service tech the next address while he is on the highway. He reads it. The crash totals the van and puts him in a neck brace for three months. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Roadway incidents involving motorized land vehicles cost about \$3.22 billion in 2023, roughly 6% of the top-10 total and No. 7 on the list. This includes crashes in company and personal vehicles used for work on public roads.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Dispatch, sales, and service schedules assume drivers can take calls and texts while driving.
- Route and delivery windows push speed and long hours.
- No one checks driver records, fatigue, or vehicle condition for non-CDL drivers.
- Personal vehicles are used for work with no policy at all.
- Seat belt use is assumed, not checked.

REQUIREMENTS AND CONTROLS · ROADWAY INCIDENTS

What the rules require, in plain words

49 CFR 392.80 · FMCSA · final	Commercial motor vehicle drivers may not text while driving, and carriers may not allow or require it. Emergency calls to police or emergency services are the exception.
49 CFR 392.82 · FMCSA · final	CMV drivers may not use a hand-held mobile phone while driving, and carriers may not allow or require it.
1926.601(b)(9) · CON · final	Construction motor vehicles must have seat belts and anchorages that meet federal motor vehicle standards. Vehicles with an obstructed rear view need a backup alarm or a spotter (1926.601(b)(4)).
OSHA/NHTSA/NETS guidelines · GUIDANCE	For non-CMV company driving, OSHA points employers to a 10-step guide: senior management commitment, written policies, driver agreements, MVR checks, crash reporting and investigation, vehicle selection and maintenance, discipline, rewards, training, and regulatory compliance. This guide found no OSHA general-industry standard written specifically for employee driving on public roads.
OSH Act 5(a)(1) · BOTH · final	OSHA may cite recognized driving hazards under the General Duty Clause.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Cut trips: phone or video for some visits, better routing, fewer same-day emergency runs.
Engineer	Phone-lock or do-not-disturb-while-driving settings on company phones; telematics for speed and harsh braking; well-maintained vehicles with current safety features.
Administrative	Written policy: no calls or texts while driving, including from dispatch. Seat belts every trip. Driver record checks. Hours and fatigue limits.
Leadership	Dispatch and managers do not call drivers who are moving. Reward drivers for pulling over to answer.
Small-shop fix	Change one rule today: dispatch sends the next job before the driver leaves the last one, or waits for a call back. Put it in writing.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

07 · Roadway incidents

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	There is a written driving policy that covers phones, seat belts, and speed.	☐	☐	☐	
2	Dispatch and managers know not to call or text moving drivers.	☐	☐	☐	
3	Company phones use a driving mode that blocks texts.	☐	☐	☐	
4	Driver records (MVRs) are checked at hire and at least yearly.	☐	☐	☐	
5	Vehicles have a pre-trip inspection and a defect reporting path.	☐	☐	☐	
6	Defects are fixed before the vehicle goes back out.	☐	☐	☐	
7	Schedules allow legal speeds and breaks.	☐	☐	☐	
8	Personal vehicles used for work are covered by the policy.	☐	☐	☐	
9	Seat belt use is checked (spot checks or telematics).	☐	☐	☐	
10	CMV drivers and carriers meet the FMCSA phone and texting rules.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · ROADWAY INCIDENTS

Who owns it

Owner / GM	Sets the no-phone rule for managers first and funds telematics or phone tools.
Dispatch / operations	Plans routes and windows that do not require speeding or phone use.
Fleet lead	Owens vehicle inspection, maintenance, and MVR checks.
Drivers	Pull over to use the phone; report defects; have the right to stop a trip.
Safety lead	Reviews crashes and near misses with dispatch every month.

How to verify it is working in the field

- Pull one week of dispatch messages. Count how many went to drivers while they were moving.
- Ride along or review telematics for one route. Check speed and harsh-braking events.
- Ask a driver what happens if they do not answer dispatch for 20 minutes.

TOOLBOX TALK STARTER

When is the last time you answered the phone while driving for work, and who was calling?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If a vehicle has a safety defect, park it now. If dispatch is texting moving drivers, stop it today and put the new rule in writing. Then run the eight-step gap response at the front of this guide.

08

Struck against object or equipment

1910.176(a), (e) [GI] · 1910.22(a)(3) [GI] · 1926.25(a) [CON]

\$1.79B

direct cost in 2023

~4%

of the top-10 cost*

No. 8

in the 2026 Index

THE PAIN POINT The low beam over the mezzanine stairs has a dent in the paint at forehead height. Everyone ducks. The temp on day two does not. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Being struck against an object or equipment (walking into, bumping, or striking a body part against something) cost about \$1.79 billion in 2023, roughly 4% of the top-10 total and No. 8 on the list.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Low clearances, protruding shelves, and sharp edges were never marked because regulars know where they are.
- Aisles are too tight for the equipment and the people using them.
- Clutter and temporary storage narrow paths over time.
- Poor lighting in back rooms, mezzanines, and trailers.
- New and temporary workers get no walk-through of the site's hazards.

REQUIREMENTS AND CONTROLS · STRUCK AGAINST OBJECT OR EQUIPMENT

What the rules require, in plain words

1910.176(a) · GI · final	Allow safe clearances for aisles, docks, doorways, and turns where mechanical equipment is used. Keep aisles clear and mark permanent ones.
1910.176(e) · GI · final	Post clearance signs to warn of clearance limits.
1910.22(a)(3) · GI · final	Keep walking surfaces free of sharp or protruding objects.
1926.25(a) · CON · final	Clear scrap lumber with protruding nails and other debris from construction work areas and passageways.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Move or remove the obstruction: re-hang the beam-level conduit, cut off protruding brackets, widen the path.
Engineer	Padding and edge guards on low beams and corners, rounded table edges, mirrors at blind corners, better lighting.
Administrative	Mark every low clearance with yellow-black striping and a posted height. New and temp worker walk-through on day one.
PPE	Bump caps where low clearance cannot be fixed. Practical note, not an OSHA requirement: they are not hard hats and do not meet 1910.135 where falling-object protection is required.
Small-shop fix	Walk the site with a tall person and a roll of striped tape. Mark and pad every point they have to duck.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

08 · Struck against object or equipment

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	Low clearances are marked with striping and posted height.	☐	☐	☐	
2	Low beams, pipes, and corners in walkways are padded.	☐	☐	☐	
3	No shelves, brackets, or sharp edges protrude into walkways.	☐	☐	☐	
4	Aisles are wide enough for the equipment and people using them.	☐	☐	☐	
5	Blind corners have mirrors or other visibility aids.	☐	☐	☐	
6	Lighting is adequate in back rooms, mezzanines, and trailers.	☐	☐	☐	
7	Temporary storage is not narrowing marked aisles.	☐	☐	☐	
8	New and temporary workers get a hazard walk-through on day one.	☐	☐	☐	
9	Bump caps are provided where low clearance cannot be fixed.	☐	☐	☐	
10	Workers report bumps and near misses, and the last one was acted on.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · STRUCK AGAINST OBJECT OR EQUIPMENT

Who owns it

Owner / GM	Approves fixes that remove obstructions, not just pad them.
Maintenance lead	Moves, pads, and marks obstructions.
Supervisor	Walks new and temp workers through the hazards on day one.
Workers	Report bumps and near misses; have the right to stop.
Safety lead	Tracks struck-against injuries by location.

How to verify it is working in the field

- Look for dents, scuffs, and worn paint on low points. Each one is a near-miss log.
- Ask a temp worker on day three what they were warned about.
- Re-walk the marked points in 30 days to confirm padding and tape are intact.

TOOLBOX TALK STARTER

What on this site have you hit your head, shoulder, or knee on, and does the new person know about it?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

Mark and pad the point now. Name the owner and date for removing or relocating it. Then run the eight-step gap response at the front of this guide.

09 Intentional injury by person (workplace violence)

OSH Act 5(a)(1) [BOTH] · Cal. Labor Code 6401.9 [STATE] · OSHA 3148 [GUIDANCE] · 1904 [BOTH]

\$1.75B

direct cost in 2023

~4%

of the top-10 cost*

740

U.S. workplace deaths from violent acts in 2023 (BLS CFOI, via OSHA)

THE PAIN POINT The front desk has asked twice for a lock on the door to the back office. A customer who was told no on a warranty claim comes back. The clerk is hurt, and two others quit the next week. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Intentional injury by person cost about \$1.75 billion in 2023, roughly 4% of the top-10 total and No. 9 on the list. OSHA reports that of the 5,283 U.S. workplace deaths in 2023, 740 were due to violent acts (BLS Census of Fatal Occupational Injuries; status: final).

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Front-line staff handle money, angry customers, or bad news alone.
- Warning signs and threats are not reported because nothing happened last time.
- Physical layout gives no barrier, exit, or way to call for help.
- Late-night, isolated, or field work with no check-in.
- No plan for how to respond, so people improvise.

REQUIREMENTS AND CONTROLS · INTENTIONAL INJURY BY PERSON (WORKPLACE VIOLENCE)

What the rules require, in plain words

OSH Act 5(a)(1) · BOTH · final	OSHA states there are currently no specific OSHA standards for workplace violence. OSHA can cite recognized violence hazards under the General Duty Clause (enforcement directive CPL 02-01-058).
Cal. Labor Code 6401.9 · STATE · final	California employers within the law's scope must have a written workplace violence prevention plan, training, a violent incident log, and reporting with no retaliation (in effect July 1, 2024). A Cal/OSHA standard is due by Dec. 31, 2026 (status: pending). Check your own state.
OSHA 3148 · GUIDANCE	OSHA's guidelines for healthcare and social service workers lay out a full prevention program: leadership commitment, worker involvement, hazard analysis, controls, training, and records.
29 CFR 1904 · BOTH · final	Work-related injuries from violence are recordable like any other injury when they meet the recording criteria.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Reduce cash on hand; move high-conflict conversations off the front counter; avoid lone late-night work where you can.
Engineer	Controlled entry, locks on staff-only doors, barriers at counters, good lighting and sight lines, panic buttons, a clear exit route behind the counter.
Administrative	Written policy and plan; threat reporting with no retaliation; check-in for lone and field workers; de-escalation training; a response plan people have practiced.
After an incident	Medical care, support, and a debrief that looks at conditions, not just the attacker.
Small-shop fix	Ask front-line staff: when have you felt unsafe here? Fix the top answer this month. Put a lock on the staff door today.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

09 · Intentional injury by person (workplace violence)

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	There is a written workplace violence policy, and staff can describe it.	☐	☐	☐	
2	Staff-only areas have locks or controlled entry.	☐	☐	☐	
3	Front counters have a barrier or a safe distance and a clear exit.	☐	☐	☐	
4	There is a way to call for help quickly (panic button, code word, phone).	☐	☐	☐	
5	Lighting and sight lines are good at entrances and parking areas.	☐	☐	☐	
6	Lone, late-night, and field workers have a check-in system.	☐	☐	☐	
7	Threats and warning signs are reported and logged.	☐	☐	☐	
8	Staff who deal with the public have had de-escalation training.	☐	☐	☐	
9	There is a response plan that has been practiced.	☐	☐	☐	
10	The last reported threat got a documented response.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · INTENTIONAL INJURY BY PERSON (WORKPLACE VIOLENCE)

Who owns it

Owner / GM	Funds physical security and backs the no-retaliation rule.
HR	Owens policy, threat reporting, and support after incidents.
Supervisor	Acts on warning signs and keeps check-ins running.
Workers	Report threats and incidents; have the right to leave an unsafe situation.
Safety lead	Runs the hazard assessment and incident log; reviews it quarterly.

How to verify it is working in the field

- Ask three front-line staff where they would go and how they would call for help. Their answers should match.
- Test the panic button or code word and time the response.
- Review the threat log. If it is empty, ask why.

TOOLBOX TALK STARTER**When have you felt unsafe at work here, and what would have helped?**

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

If someone is at immediate risk, get them to safety and call for help. Then fix the condition that left them exposed, and name the owner and date. Then run the eight-step gap response at the front of this guide.

10 Repetitive motions involving microtasks

OSH Act 5(a)(1) [BOTH] · OSHA ergonomics guidelines [GUIDANCE] · NIOSH [GUIDANCE]

\$1.6B

direct cost in 2023

~3%

of the top-10 cost*

No. 10

in the 2026 Index

THE PAIN POINT The packing line runs a new box style that needs four extra folds. Nobody changed the rate. Six weeks later, two packers have wrist pain that keeps them up at night. (illustrative)

What the data says

As reported by Safety+Health (Sept. 28, 2026). Repetitive motions involving microtasks cost about \$1.6 billion in 2023, roughly 3% of the top-10 total and No. 10 on the list. These injuries come from small, fast, repeated hand and arm motions (assembly, packing, data entry, trimming) and build over weeks, not seconds.

Why it really happens

Not worker carelessness. These are the system and leadership conditions that make this predictable.

- Rates and line speeds change without a look at motions per hour.
- Tools vibrate, need pinch grips, or need force the hand was not built to repeat.
- No rotation, so the same muscles work the whole shift.
- Early symptoms (tingling, night pain) are treated as normal.
- Process changes (new product, new packaging) are not reviewed for ergonomics.

REQUIREMENTS AND CONTROLS · REPETITIVE MOTIONS INVOLVING MICROTASKS

What the rules require, in plain words

OSH Act 5(a)(1) · BOTH · final	OSHA has no ergonomics standard; it cites repetitive-motion hazards under the General Duty Clause when the hazard is recognized and a feasible fix exists.
OSHA ergonomics guidelines · GUIDANCE	OSHA's industry guidelines (for example meatpacking and poultry processing) show recognized hazards and fixes for repetitive hand work. Advisory, not citable by themselves.
NIOSH ergonomics resources · GUIDANCE	NIOSH publishes free tools including Elements of Ergonomics Programs and A Guide to Selecting Non-Powered Hand Tools.

Paraphrased. Federal regulatory text checked on eCFR (current to Oct. 8, 2026) on Oct. 13, 2026. State-plan states may have different or additional rules. Tags: GI = general industry (29 CFR 1910). CON = construction (29 CFR 1926). BOTH = applies to both (the OSH Act, 29 CFR 1904). FMCSA = commercial motor vehicle drivers and carriers (49 CFR). STATE = one state's law. GUIDANCE = advisory; it is not a rule and cannot be cited by itself.

Controls that work, in hierarchy order

Eliminate	Automate the worst repeated motion: pre-folded boxes, auto-taping, jigs and fixtures that hold the part.
Engineer	Tools with power grips instead of pinch grips, lower vibration, lighter weight, and the right handle size; work heights that keep wrists straight.
Administrative	Rotate between tasks that use different muscles. Re-check rates when the product or process changes. Short micro-breaks.
Early reporting	Treat tingling, numbness, and night pain as reportable early. Early care costs less than surgery.
Small-shop fix	When a product or package changes, count motions per minute before and after. If it goes up, change the rate or the method.

Leaders own the conditions. If the fix only works when someone is willing to argue with the schedule or the budget, it is not a fix. Build it so the safe way is the normal way, and the cheap way.

30-MINUTE SELF-AUDIT · PRINT AND TAKE TO THE FLOOR

10 · Repetitive motions involving microtasks

SITE	AREA / JOB / CREW	AUDITOR	DATE
------	-------------------	---------	------

#	CHECK WHAT YOU CAN SEE OR PUT YOUR HAND ON	YES	NO	N/A	NOTES
1	We know the jobs with the most repeated hand and wrist motions.	☐	☐	☐	
2	Rates were reviewed the last time the product or process changed.	☐	☐	☐	
3	Workers rotate between tasks that use different muscle groups.	☐	☐	☐	
4	Hand tools fit the hand and do not require pinch grips or high force.	☐	☐	☐	
5	Vibrating tools have been checked for vibration and maintained.	☐	☐	☐	
6	Work heights keep wrists straight and elbows near the body.	☐	☐	☐	
7	Jigs or fixtures hold parts instead of the worker's hand.	☐	☐	☐	
8	Workers know early symptoms and how to report them.	☐	☐	☐	
9	Early symptom reports get a response within a week.	☐	☐	☐	
10	Process changes go through an ergonomics check before launch.	☐	☐	☐	

#	GAP FOUND	OWNER (ONE NAME)	DUE	VERIFIED

Rule: any “No” that is a live exposure gets stopped or contained before you leave the area. Stop is a right on this site. Restart is a decision. A named person makes it after the control is in place.

PREVENTION PLAYBOOK · REPETITIVE MOTIONS INVOLVING MICROTASKS

Who owns it

Owner / GM	Funds tooling and automation for the worst repeated tasks.
Engineering	Reviews motions and tooling for every product or process change.
Supervisor	Runs rotation and acts on early symptom reports.
Workers	Report symptoms early; suggest tool and method changes; have the right to stop.
Safety lead	Tracks hand, wrist, and arm cases by job and checks fixes.

How to verify it is working in the field

- Count motions per minute on the worst job before and after the fix.
- Ask workers on the line if anyone has hand or wrist symptoms. Compare to the log.
- Check the last product or process change. Was there an ergonomics review?

TOOLBOX TALK STARTER

What part of your job does your hand or wrist feel at night?

Ask it at the job, not in the break room. Then listen. Write down what you hear and give it an owner before you leave.

IF YOU FIND A GAP

Rotate the task now and get the worker an early medical look if they have symptoms. Then name the owner and date for the tool, method, or rate fix. Then run the eight-step gap response at the front of this guide.

CHECK OUR WORK

Sources

1. Liberty Mutual Insurance, 2026 Workplace Safety Index (landing page)
<https://business.libertymutual.com/workplace-safety-index/>
2. Safety+Health magazine (National Safety Council), "Injuries and illnesses cost U.S. employers \$58.7 billion in 2023, insurer's index shows," Sept. 28, 2026 (full 2026 top-10 list and method quote)
<https://www.safetyandhealthmagazine.com/injuries-and-illnesses-cost-u-s-employers-58-7-billion-in-2023-insurers-index-shows/>
3. WorkCompWire, "Liberty Mutual Releases 2025 Workplace Safety Index," July 17, 2025 (25-year trend; 2025 figures)
<https://www.workcompwire.com/2025/07/liberty-mutual-releases-2025-workplace-safety-index/>
4. Liberty Mutual, 2023 Workplace Safety Index (PDF; category definitions)
https://business.libertymutual.com/wp-content/uploads/2023/07/WSI_1000_2023.pdf
5. OSH Act Section 5, Duties (General Duty Clause)
<https://www.osha.gov/laws-regs/oshact/section5-duties>
6. OSH Act Section 11(c), anti-retaliation
https://www.osha.gov/laws-regs/oshact/section_11
7. 29 CFR 1904 (recordkeeping), incl. 1904.7 and 1904.39, eCFR
<https://www.ecfr.gov/current/title-29/part-1904>
8. 29 CFR 1910.22, walking-working surfaces, general requirements, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.22>
9. 29 CFR 1910.23, ladders, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.23>
10. 29 CFR 1910.28, duty to have fall protection and falling object protection, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.28>
11. 29 CFR 1910.30, training requirements (walking-working surfaces), eCFR
<https://www.ecfr.gov/current/title-29/section-1910.30>
12. 29 CFR 1910.135, head protection, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.135>
13. 29 CFR 1910.136, foot protection, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.136>
14. 29 CFR 1910.176, handling materials, general, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.176>
15. 29 CFR 1910.178, powered industrial trucks, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.178>
16. 29 CFR 1910.212, general requirements for all machines, eCFR
<https://www.ecfr.gov/current/title-29/section-1910.212>
17. 29 CFR 1926.25, housekeeping (construction), eCFR
<https://www.ecfr.gov/current/title-29/section-1926.25>
18. 29 CFR 1926.100, head protection (construction), eCFR
<https://www.ecfr.gov/current/title-29/section-1926.100>
19. 29 CFR 1926.501 and 1926.503, fall protection duty and training (construction), eCFR
<https://www.ecfr.gov/current/title-29/section-1926.501>
20. 29 CFR 1926.1053, ladders (construction), eCFR
<https://www.ecfr.gov/current/title-29/section-1926.1053>
21. 29 CFR 1926.601, motor vehicles (construction), eCFR
<https://www.ecfr.gov/current/title-29/section-1926.601>

22. 49 CFR 392.80, prohibition against texting (CMV), eCFR
<https://www.ecfr.gov/current/title-49/section-392.80>
23. 49 CFR 392.82, hand-held mobile telephone use (CMV), eCFR
<https://www.ecfr.gov/current/title-49/section-392.82>
24. OSHA, Ergonomics safety and health topic page
<https://www.osha.gov/ergonomics>
25. OSHA, Ergonomics FAQs (General Duty Clause citation criteria; guidelines are advisory)
<https://www.osha.gov/ergonomics/faqs>
26. NIOSH, Revised NIOSH Lifting Equation
<https://www.cdc.gov/niosh/ergonomics/about/RNLE.html>
27. NIOSH, Applications Manual for the Revised NIOSH Lifting Equation, Pub. 94-110 (revised Sept. 2021)
<https://www.cdc.gov/niosh/docs/94-110/>
28. OSHA, Walking-Working Surfaces topic page
<https://www.osha.gov/walking-working-surfaces>
29. OSHA, Motor Vehicle Safety topic page
<https://www.osha.gov/motor-vehicle-safety>
30. OSHA/NHTSA/NETS, Guidelines for Employers to Reduce Motor Vehicle Crashes (PDF)
https://www.osha.gov/sites/default/files/publications/MOTOR_VEHICLE_GUIDE.pdf
31. OSHA, Workplace Violence topic page (no specific OSHA standard; 2023 CFI figures)
<https://www.osha.gov/workplace-violence>
32. OSHA 3148, Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers (PDF)
<https://www.osha.gov/sites/default/files/publications/osh3148.pdf>
33. Cal/OSHA, Workplace Violence Prevention for General Industry (Labor Code 6401.9, SB 553)
<https://www.dir.ca.gov/dosh/Workplace-Violence/General-Industry.html>
34. OSHA, On-Site Consultation Program
<https://www.osha.gov/consultation>
35. OSHA, Recommended Practices for Safety and Health Programs
<https://www.osha.gov/safety-management>

Sources retrieved and checked October 13, 2026. This guide is a practical summary for planning and self-audit. It is not legal, medical, or insurance advice and does not replace the text of OSHA, FMCSA, or state rules, or your insurer's requirements. State-plan states may have different or additional rules. Regulatory text is paraphrased. When this guide and a regulation disagree, the regulation controls. Cost figures are national estimates of direct costs and will not match any one company's losses.

FREE FIELD TOOL · NEXT STEP

ONE AREA. SEVEN MINUTES.

The free 7-Minute Safety Walk is a one-page field tool. Pick one area running right now. Name the energy: the load, the height, the vehicle, the wet floor. Find the control you can put your hand on, and compare it to what the paper claims. It is the fastest way to find out whether the fixes in this guide are working at your site today.

Get the free 7-Minute Safety Walk →

thewaysofsafety.com/walk



EHS CONCEPTS
— THE WAYS OF SAFETY —

Keep your people whole.

Ryan L. Rinehart · EHS Concepts — The Ways of Safety · thewaysofsafety.com · EHSConceptsTWS@outlook.com