

# Fall Protection on Stationary Trucks:

**J. Nigel Ellis Ph.D., CSP, P.E., CPE**

**Jeff Strauss, BSME**

**[www.FallSafe.com](http://www.FallSafe.com)**

**[www.FallSafety.com](http://www.FallSafety.com)**

**1.800.372.7775**

***NSC Congress***

***16 October 2007***

# Fall Protection on Stationary Trucks

- General Industry
- Construction
- Transportation

# Tarpping focus

- General Industry – safety, productivity, liability
  - Shipping
  - Receiving

Research was sponsored  
by several large  
Corporations that ship

# Tarping focus

- Construction Safety, Productivity, Liability
  - Riggers
  - Ironworkers
  - Laborers

Hazard Recognition:  
Proactive or Reactive?

# Tarping focus

Transportation Safety Productivity and Liability for Flatbed Operations:

Safe Loading/Unloading, Tie-down,  
Tarping Fleet ops, owner/operators

Nigel Ellis will discuss analogous solutions to Rail cars, Barges, Road transport tank trucks ..... and at the close a proposal for trucking firms!!

# Fall Hazard Problems



- Climbing the load to attach chain hoist



# Flatbed Deck Fall Hazards



# Gypsum/Wallboard/Drywall Tarping:

- Fall Hazard Exposure



Driver told to move to a dirt lot outside gate, then tie-down, then tarp. Fell on his head and died after stepping into a void.



# Loads requiring Tarping

- Drywall
- Steel shapes and piping
- Aluminum shapes and packages
- Government shipments
- Glass
- Plywood/OSB
- Equipment
- Approx 60% of shipments

# Truck Safety Jurisdiction

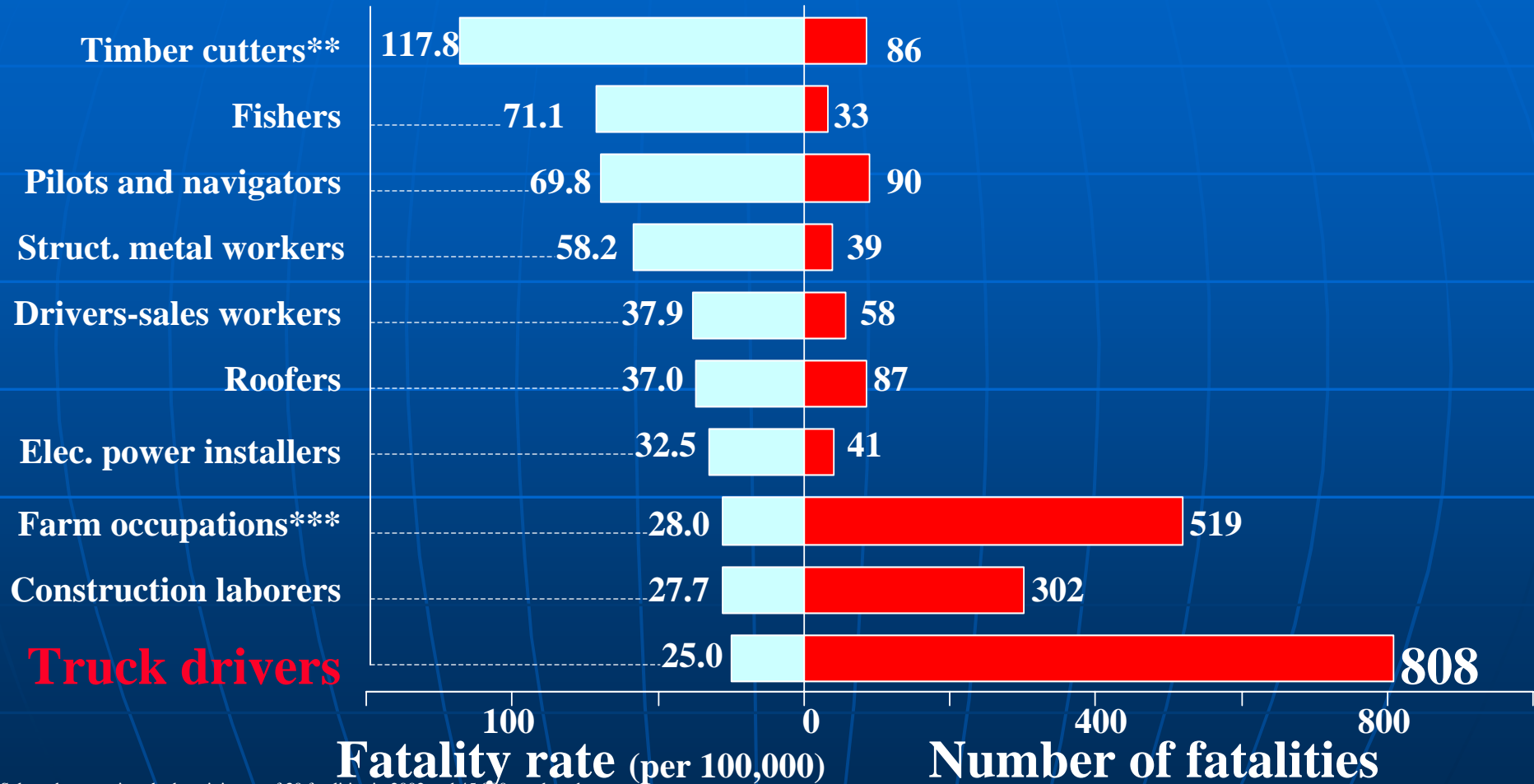
- OSHA
- DOT/FMCSA

# Statistics

- Fatalities BLS
- Injuries to truck drivers BLS

# Occupations\* with the highest fatality rates, 2002

Average fatality rate for all occupations: 4.0



\*Selected occupations had a minimum of 30 fatalities in 2002 and 45,000 employed.

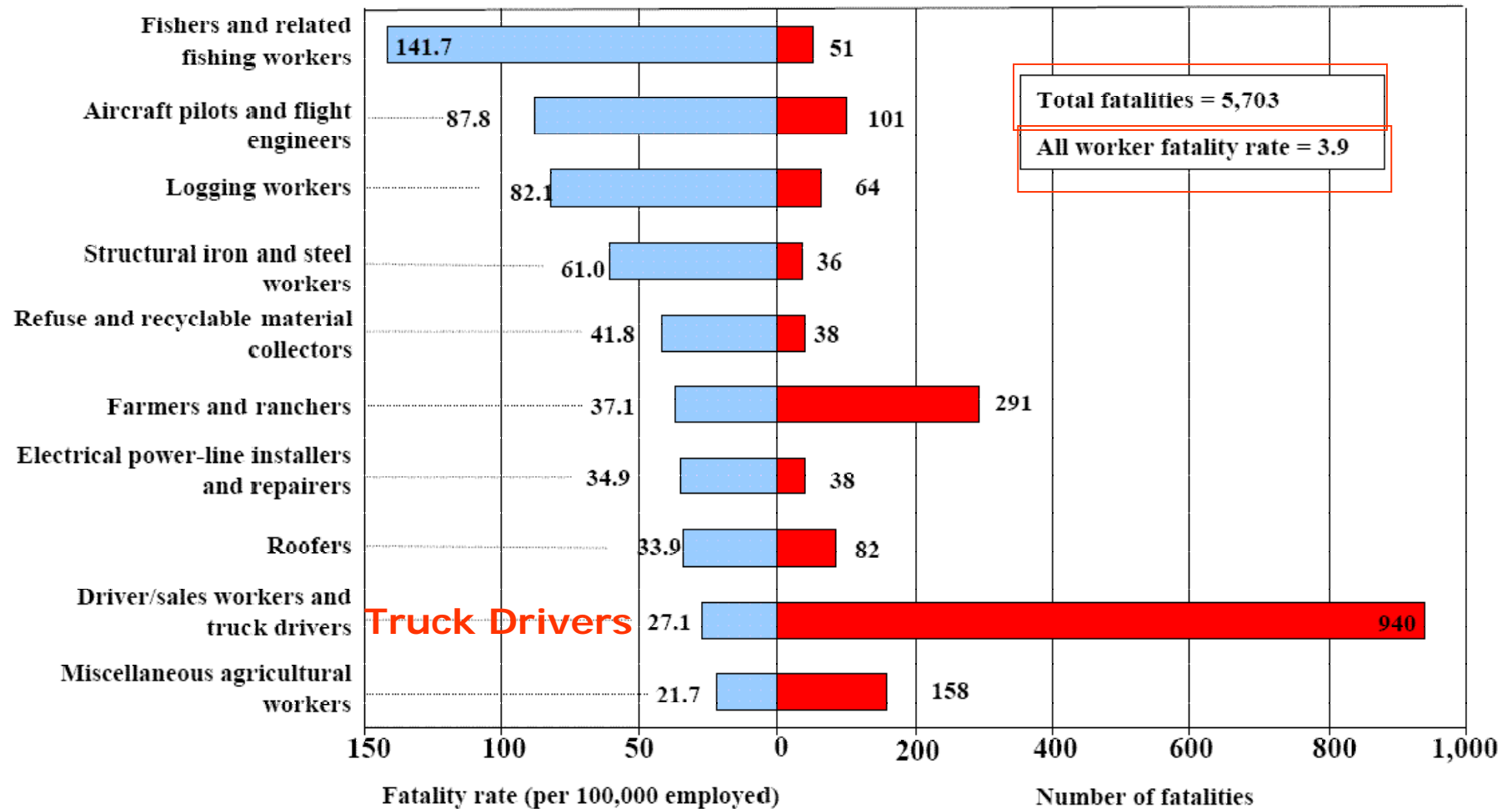
\*\*Timber cutters include the following: Timber cutting and logging occupations; supervisors, forestry, and logging workers.

\*\*\*Farm occupations include the following: Non-horticultural farmers, non-horticultural farm managers, farm workers, and farm worker supervisors.

Rate = (Fatal work injuries/Employment) x 100,000 employed. Employment data extracted from the 2002 Current Population Survey (CPS). The fatality rates were calculated using employment as the denominator; employment-based rates measure the risk for those employed during a given period of time, regardless of exposure hours.

SOURCE: US Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries, 2002.

## Selected occupations with high fatality rates, 2006



Fatal work injury rates were highest for fishers, aircraft pilots and flight engineers, and logging workers in 2006.




# Occupational Fatal Fall Injuries 2006

ref BLS 8 10 07

	1996	1997-99 Average	2001-4	2005	2006
OSHA total	6,280	.....	5704	5734	5703
All deaths	av 94-97				
Falls total	610	693	763	770	809
Lower level			669	664	728
- Ladders	97	107	125	129	129
- Roofs	149	155	154	160	184
- Scaffolds	88	92	87	82	88
-----					
Falls to Same Level	52	57	73	84	59

**Truck Driver Fatal Falls est. 50 (2006) JNE**

# 2005/6\* Fall Statistics for 3.5 million Truckers

	All USA	Truck Drivers	Falls to Lower	Falls to same level	Highway
Deaths*	5,703	793	18?	32	540
Injuries	1.23 MM	65,930	14,800	13,000	
<div> <div>  </div> <div> <p><b>Elevated Falls 22%</b> (non-Highway)</p> <p><b>All Trucker Falls 42%</b> (non-Highway)</p> </div> </div>					
Ref: BLS.gov 10 11 07					

# Flatbed Trucks

- BLS 2006 Fatal Falls flatbed drivers v.low
- Est 22% of trucker deaths are reported as work deaths – ripe for OSHA study?
- Some shippers have fatality rates that exceed the national BLS total for flatbeds
- **This presentation is how to provide fall protection for Flatbed truck drivers**

# OSHA jurisdiction over ships/vehicles: Mallard Bay Supreme Court decision 2002

- US Coastguard v. OSHA:
  - Uninspected Vessel deaths
- Lack of enforcement by DOT agency
- OSHA statutory rights under 4(b)(1)

4(b)(1) The OSHA Act shall not apply to working conditions of employees with respect to which other federal or state agencies that exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.

# Multiemployer Worksite Policy

- Construction – Summit case OSHRC 2007
- Gen. Ind'y – IBP v Sec. Labor (DC) 1998

OSHA standards applicable  
to owner from contractor's  
exposure now on hold



# Premises Liability

The term "premises liability" generally refers to incidents that occur due to the negligent maintenance, or unsafe or dangerous conditions upon property owned by someone other than the injured victim.



Example: Shipper requires pick up and flatbed trailer arrives; crane or forklift loads goods; driver is required to move truck to another location inside or outside for tie down and after tarping up to 13.5 feet high, is given bills of lading. Shipper retains control. If driver falls while tarping, shipper can be sued based on unsafe cond'n.

# Hierarchy of Fall Protection

- Elimination – stay on the ground
- Prevention - railings
- Fall Arrest – harness systems
- Administrative controls

# Flatbed Access

Shipping:  
Guardrails – temporary



[www.garlockequip.com](http://www.garlockequip.com)  
(No step on load)

[www.andersonladder.com](http://www.andersonladder.com)

Shipping/Receiving:  
4 - 5 ft height decks  
proper access



# Tarpping with Shipper's help

- 13.5 foot fall hazard at max. height
- Fall Hazards
- Alternatives for shippers
- Alternatives for receivers



Request shipper fork lift operator  
to lift tarps or use Shippers  
Spreader Bar (\*)

Driver stays  
on ground



# Fork Lift Help from Shipper: TarpSlinger®



Great for pipe loads



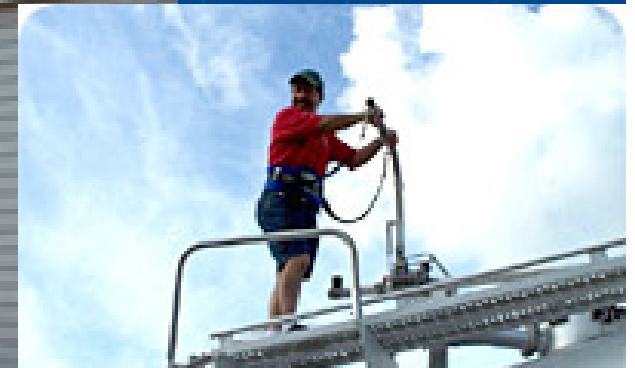
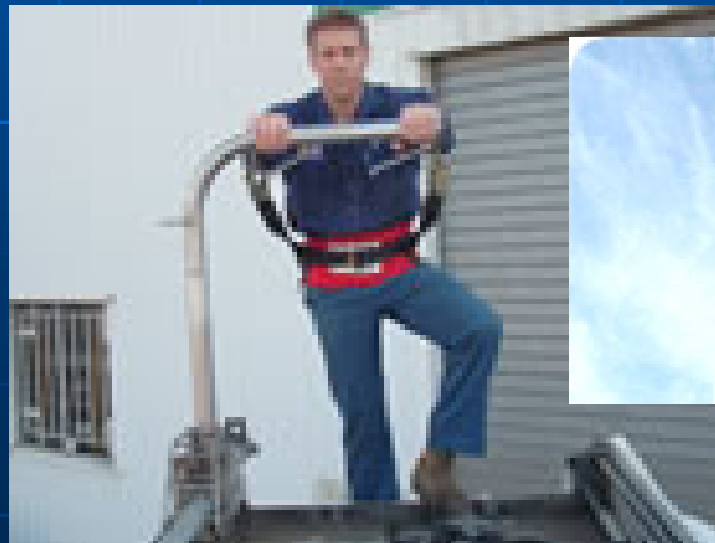
# Other types of Stationary Vehicles with FP

- Tankcars
- Tanktrucks

Standfast



2 L flexible cable system



Good for receiving

# Tank cars portable alternative



# Tank Car: Rack lowered



[www.carbis.net](http://www.carbis.net)

# Vehicle Access Fall Protection (JNE est)

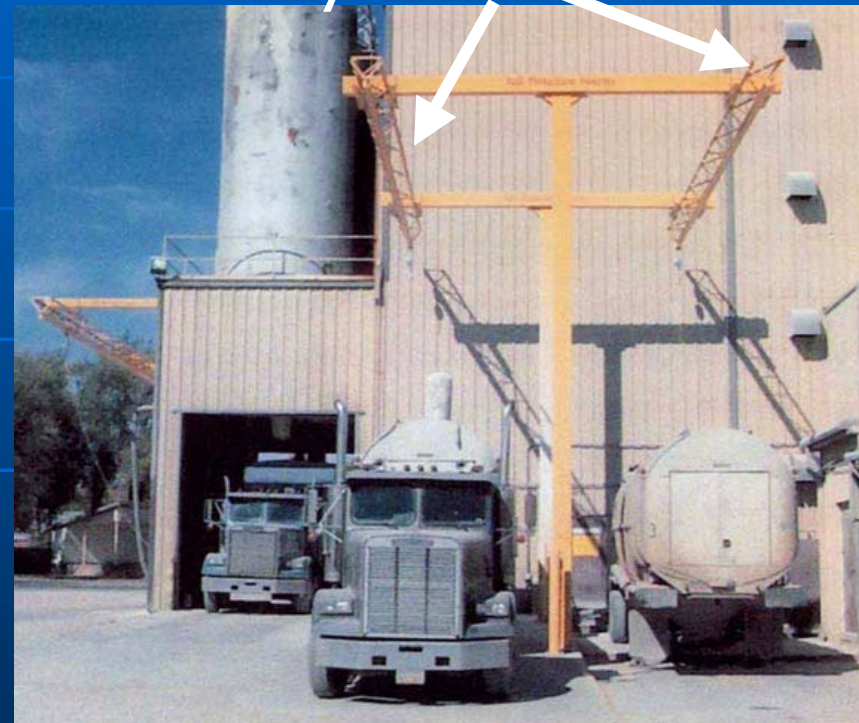
- Garbage/gravel trucks 90% (50% usable)  
(Employees 100%)
- Tank cars 75% (Employees 100%)
- Tank trucks 50% (Employees 50%)
- Flatbed 5% (95% Fleet/independent truckers)



Tarp to  
contain  
gravel,  
garbage etc.



Shipper  
T post  
overhead  
rigid rail/SRL  
system



Flip-arm tarp  
[Cramarotarps.com](http://Cramarotarps.com)



# Overseas solutions

- Australian: Soft sides  
aka 1/2  
Curtain sides



SRL (Self-  
Retracting  
Lanyard on sliding  
bar anchorage



Most Popular in  
Europe today

# European Flatbed net prototype for Freight Lines loading by crane



# European ideas for crane loading for Freight Lines; driver on flatbed





# Net Solution: loading by crane



Possible by contract: Shipper and Receiver

BlueScope Steel Australia, New Zealand  
and Alcoa, Louisiana

# Possible Fleet Solutions in USA

[www.slidingtarpsystems.com](http://www.slidingtarpsystems.com)

Hierarchy:

- Elimination ✓ best
- Prevention
- Fall Arrest



Guardrail  
concept

10  
lbs



Load by crane or  
forklift





# Rolling tarp

## Eliminates tarping fall hazards

[www.cramarotarps.com](http://www.cramarotarps.com)



\$15,000 retrofit



# HLL Fall Arrest Flexible Cable for Drywall



T-Bars

# Side Kits



↑  
Push-up  
rack  
platforms

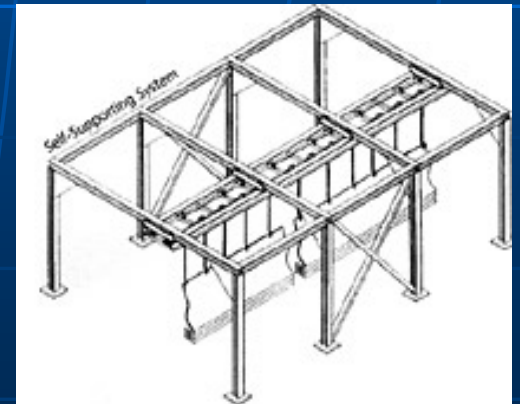


Good for  
low height  
& heavy  
loads & low  
cost \$1000

# Shipper's Rack to pull tarp over flatbed



Driver stays  
on ground



HySafe Power Tarping



# Pull tarp over trailer by Shipper



Driver stays  
on ground

[www.carbis.net](http://www.carbis.net)

# Hard Hats ANSI Z89.1-2003, Type II, Class E & G

Hard Hats make  
sense

3-point Chin  
Straps make  
good sense

Head injuries can be severe  
from 5 ft flatbed; swing impacts?

Note: always provide fall protection

[www.bullard.com](http://www.bullard.com)



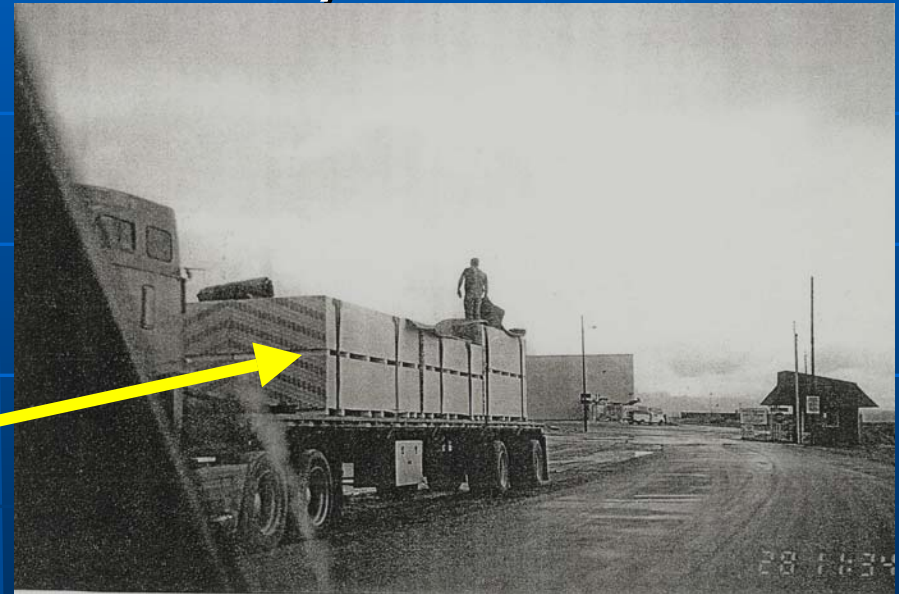
**A1**



**A2**

# OSHA jurisdiction and Law of Torts

- The effect of Mallard Bay Drilling?
- Recognition of fall hazards by Freight Lines?
- Example: dry wall flatbed truck driver catastrophe



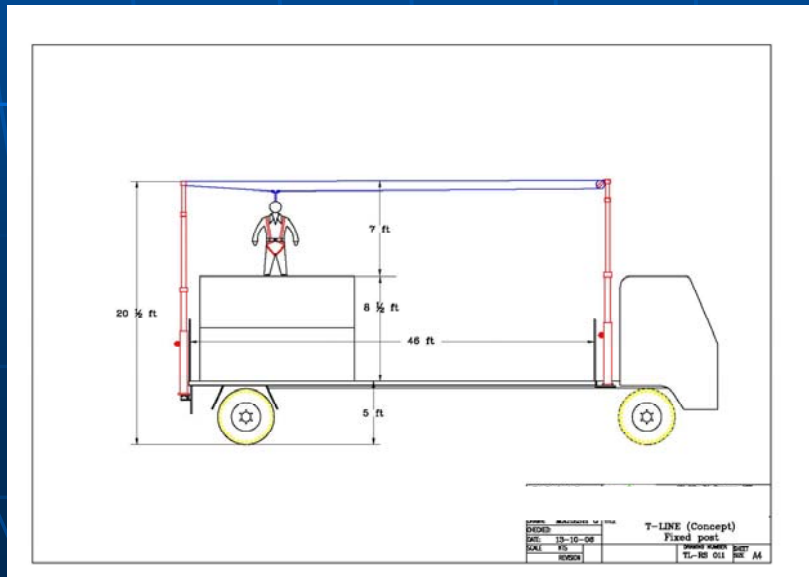
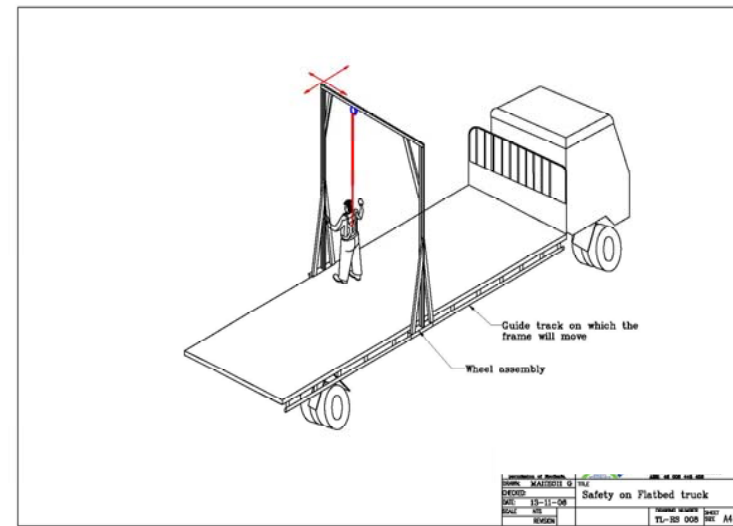
Drywall plant fatality:

Owner's Tarping Station had harness and chain lanyard suspended ten feet off the ground: "never used"; trucking line was cited by OSHA



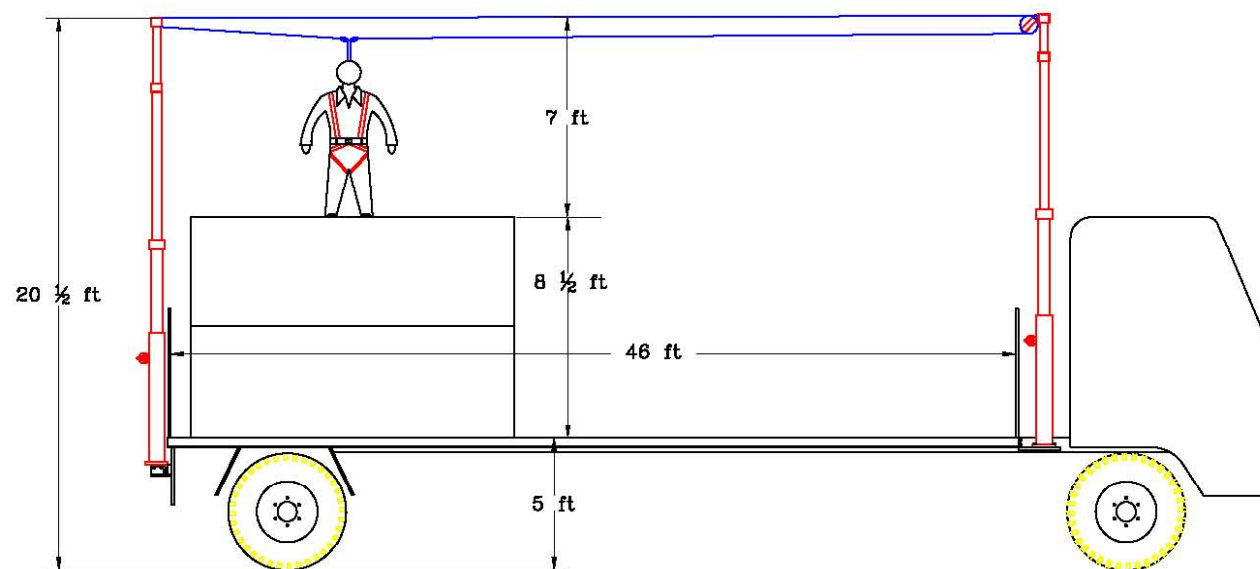
# On-board Truck Fall Protection

- The challenge for trucking firms
- How to provide fall protection in 5 mins
- How to retrofit a fleet

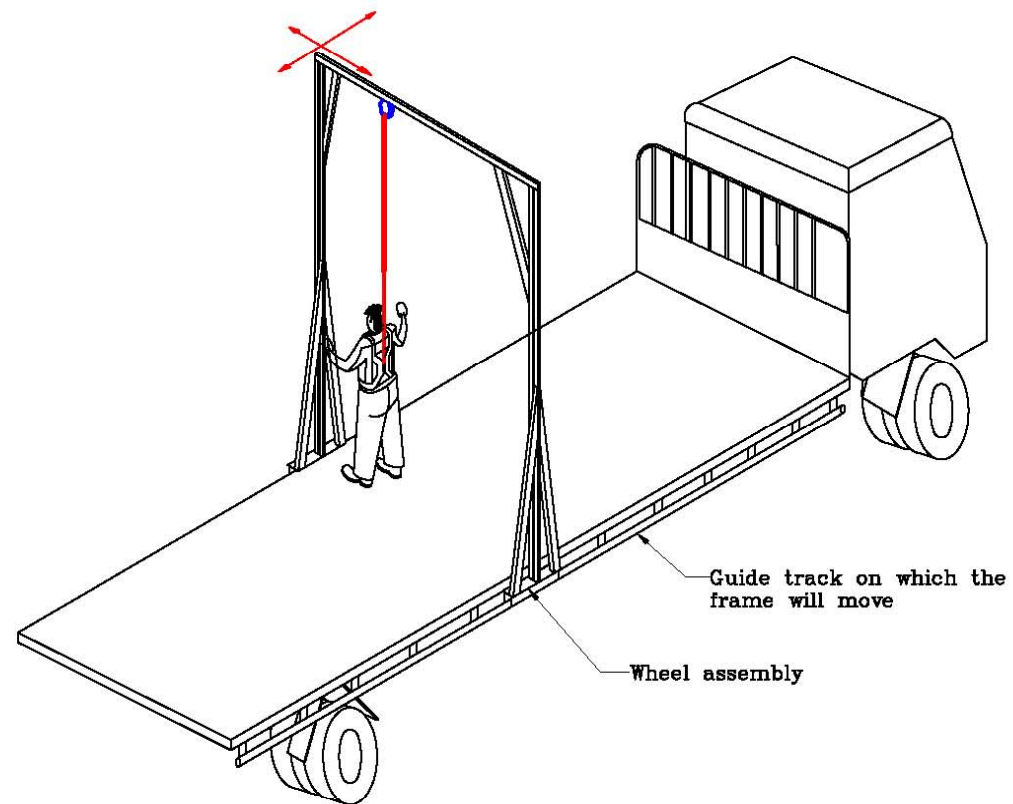


Perth, Australia tarped steel shapes delivery

Concept good for shipping and especially receiving



DRAWN: MAHESH G	TITLE	T-LINE (Concept) Fixed post	
CHECKED:			
DATE: 13-10-08		DRAWING NUMBER	SHEET
SCALE: NTS		TL-RS 011	SIZE A4
REVISION			



DRAWN: MAHESH G		TITLE	
CHECKED:		Safety on Flatbed truck	
DATE: 13-11-06			
SCALE	NTS	DRAWING NUMBER	SHEET
REVISION		TL-RS 008	SIZE A4

# Publication/Development

- Professional Safety Magazine article  
March 2008 Tarping Fall Protection
- This program on [www.FallSafety.com](http://www.FallSafety.com)  
“What’s New” by end of October
- Call 302 571 8470 for prototype field  
trials by trucking lines with flatbeds

Questions?