



Crane-Related Deaths and Injuries in Construction

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Overview

- Analysis of crane related deaths and injuries in the U.S. construction industry
- Description of selected incidents
- Sources of data
 - Bureau of Labor statistics CFI Research File
 - CraneAccidents.com
 - Washington State Department of Labor and Industries
 - OSHA Underground
 - Cranes Today
 - Weekly Toll
 - Google
 - News articles
- Descriptive statistics on deaths and injuries
- Recommendations/ Operation and Inspections
- Status of Regulation

Background:

Selected Fatal Crane Incidents 2008

3/15/08 New York, NY. Tower crane collapsed while being jumped, damaging several buildings.

6 construction workers and 1 bystander died
13 construction workers and 11 first responders injured

3/25/08 Miami, FL. 20-foot section crane fell 30 stories while jumping the crane. Miami, FL.

2 construction workers died
5 construction workers injured

Selected Fatal Crane Incidents 2008 (cont.)

- 5/30/08** New York, NY. Crane cab, boom and chain deck separate from tower mast and fell to street.
2 construction workers died
1 construction worker and 1 bystander injured
- 7/18/08** Houston, TX. Mobile crane fell on tent.
4 construction workers died
7 construction workers injured
- 7/24/08** Oklahoma City, OK. Mobile crane putting steeple on church collapses on car.
1 bystander died
1 bystander injured
- 10/10/08** China. Tower crane collapses on kindergarten.
5 children dead, 3 injured

Summary of Construction Crane-Related Deaths & Injuries, January to August, 2008*

	Deaths	Injuries
Construction workers	44	87
Bystanders	4	10
Rescue workers	--	11
Total	48	108

• **Involves incidents involving 61 mobile cranes, 6 tower cranes, 1 gantry crane and 1 crawler crane.**

• **Sources: CraneAccidents.com, Washington State Department of Labor and Industries, Google, News articles, OSHA Underground, Cranes Today, The Weekly Toll**

Causes of Construction Crane-Related Deaths & Injuries, January to August, 2008*

Cause	Incidents	Deaths	Injuries
Crane collapses	26	22	54
Overhead power line contacts	10	8	8
Struck by incidents	18*	12	13
Highway incidents	3	0	3
Caught in/between	3	2	2
Falls	2	0	3
Struck by lightning	1	0	3
Total	63	44	87

*** 5 deaths, 6 injuries from falling crane loads; 5 deaths and 6 injuries from other crane parts; and 2 deaths, 1 injury from other falling objects.**

Causes of Bystander and Other Crane-Related Deaths & Injuries, January to August 2008

Cause	Incidents	Deaths	Injuries
Crane collapse	3*	3	14**
Highway collisions	3*	1	3
Work zone intrusions	2	0	3
Struck by falling crane boom	1	0	1
Total	9	4	21

*** In 2 crane collapses and 2 highway collisions, construction workers were also killed or injured.**

**** Includes 11 first responder injuries in 3/15 New York tower crane collapse**

Crane-Related Deaths & Injuries by State, January to August 2008

- **Summary:**

- 30 states had 69 crane incidents involving 48 deaths and 108 injuries

- **States with the most incidents:**

- FL: 10 (14%) with 3 deaths and 16 injuries
- TX: 9 (13%) with 8 deaths and 17 injuries
- NY: 5 (7%) with 11 deaths and 31 injuries

These 3 states had 46% of deaths and 59% of injuries

Crane-Related Deaths in Construction, 1992-2006

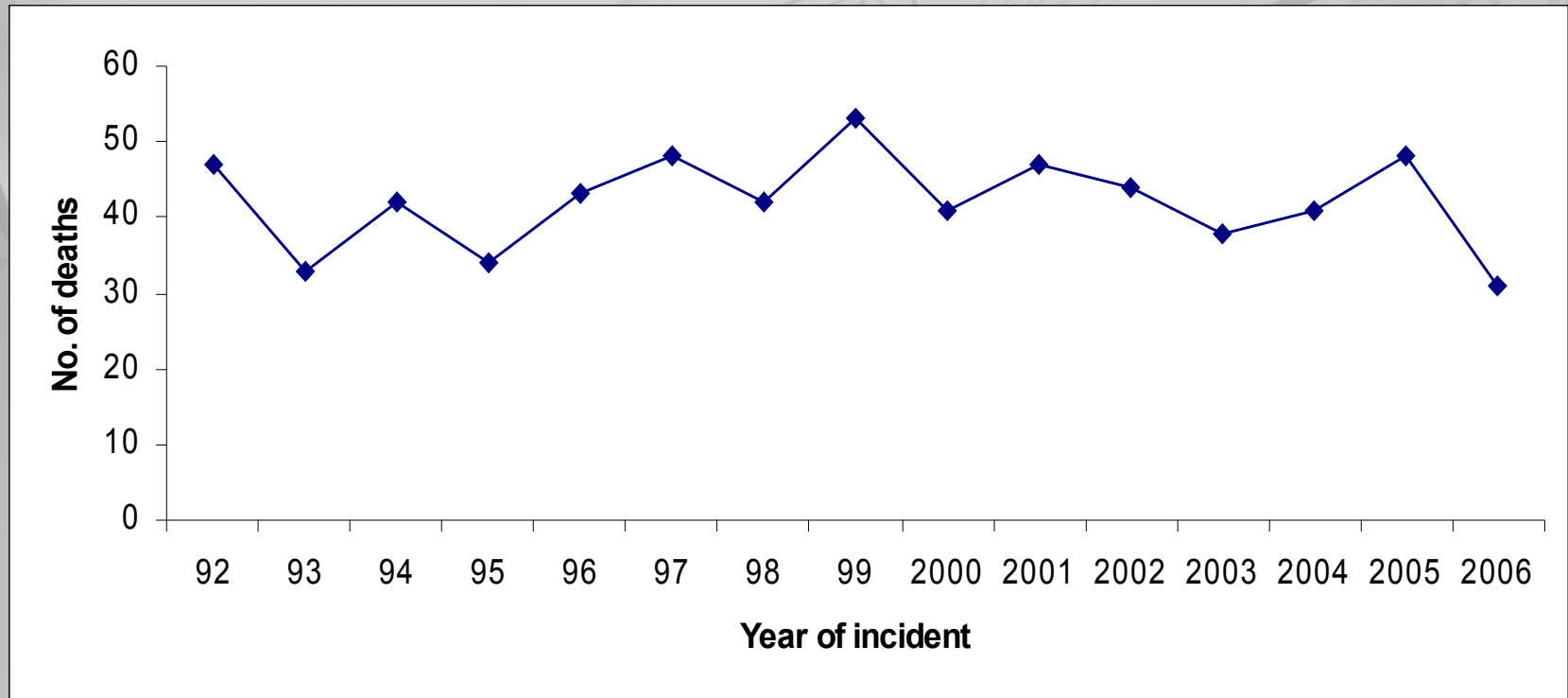
632 crane-related deaths

- An average of 42 deaths/year

18 multiple-death incidents involving a total of
40 deaths

Source: U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries Research File. Data identified by selecting CFOI Source and Secondary Source codes = "Cranes", and searching Narratives for key work "crane".

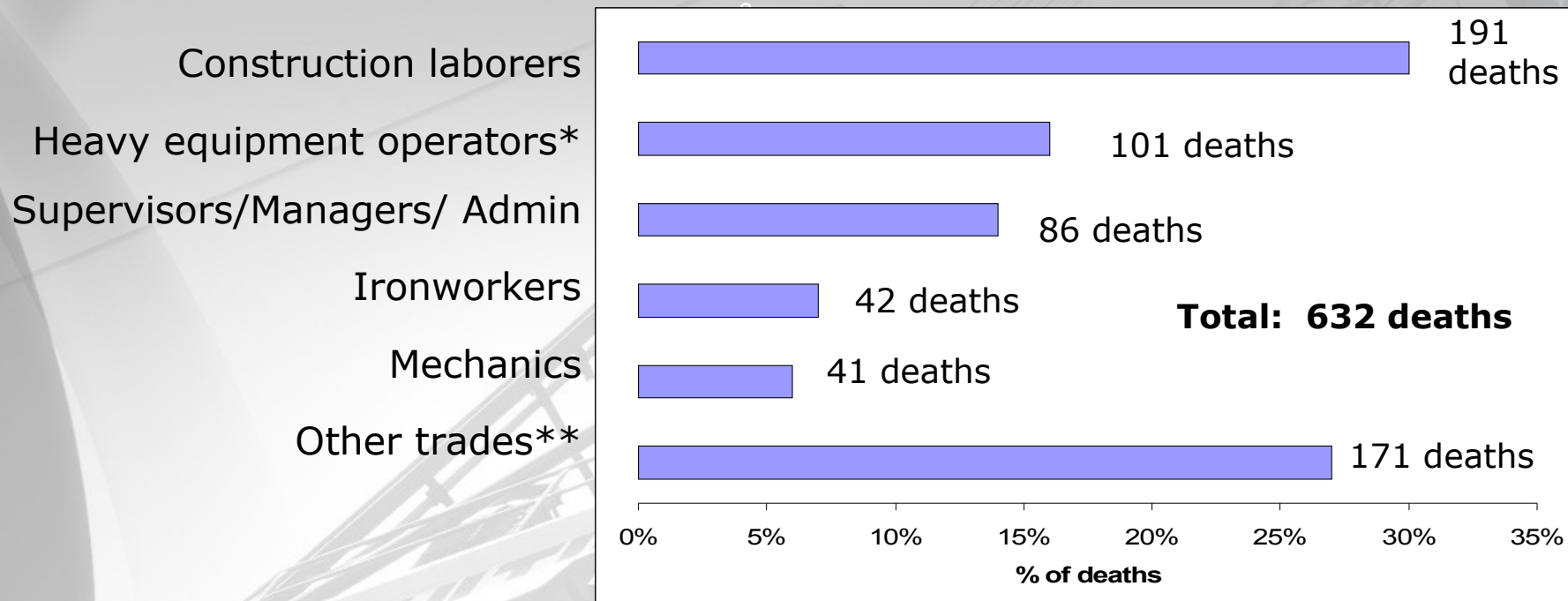
Crane-Related Deaths in Construction by Year, 1992-2006



Source: U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries Research File

Trades of Workers Who Died

Crane-Related Deaths in Construction, 1992-2006

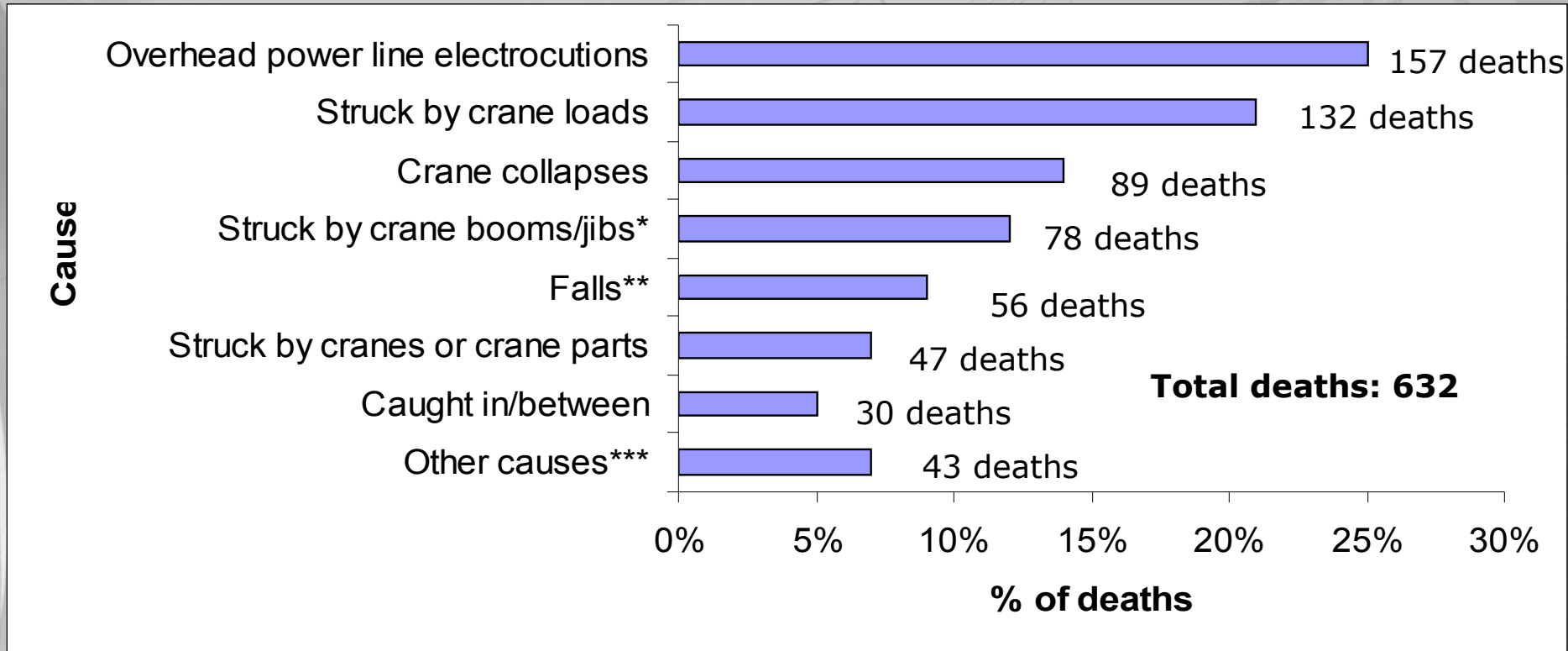


* Includes 62 crane and tower operators, 21 operating engineers and other construction equipment operators, and 7 hoist and winch operators.

** Includes 24 welders and cutters, 22 electrical workers, 21 mechanics, 17 sheet metal workers, 14 truck drivers, and 73 others.

Source: U.S. Bureau of Labor Statistics Census of Fatal Occupational Injuries Research File

Causes of Crane-Related Deaths in Construction, 1992-2006



* Included 64 struck by falling booms/jibs

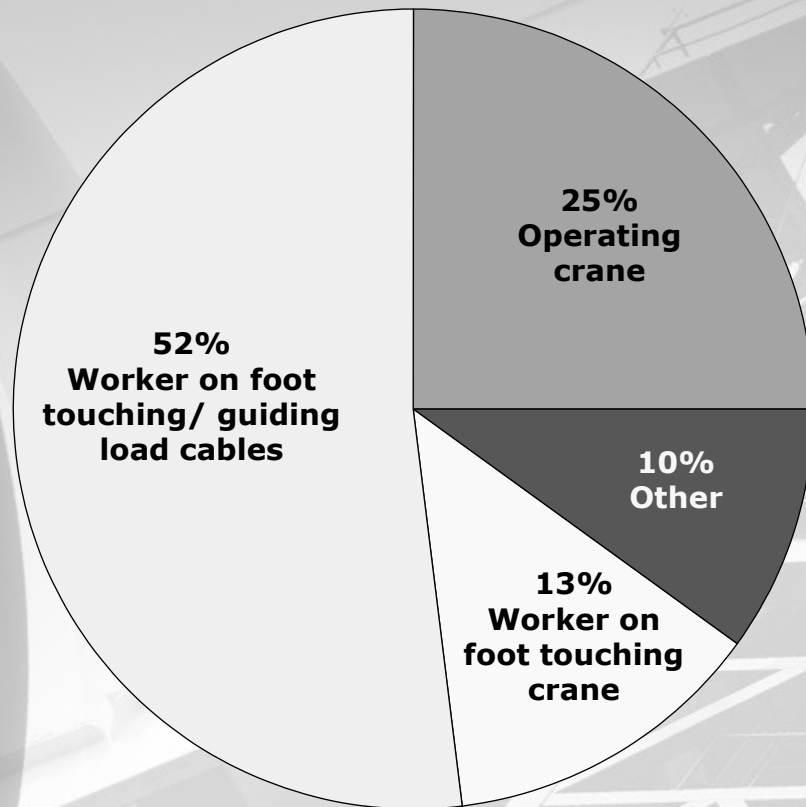
** Included 21 falls from cranes, 9 falls from crane baskets, 8 from crane loads.

***Other causes included 9 highway incidents.

Source: BLS CFOI data

Why Workers Died:

Overhead Power Line Electrocutions



1992 - 2006
Number of Deaths: 157

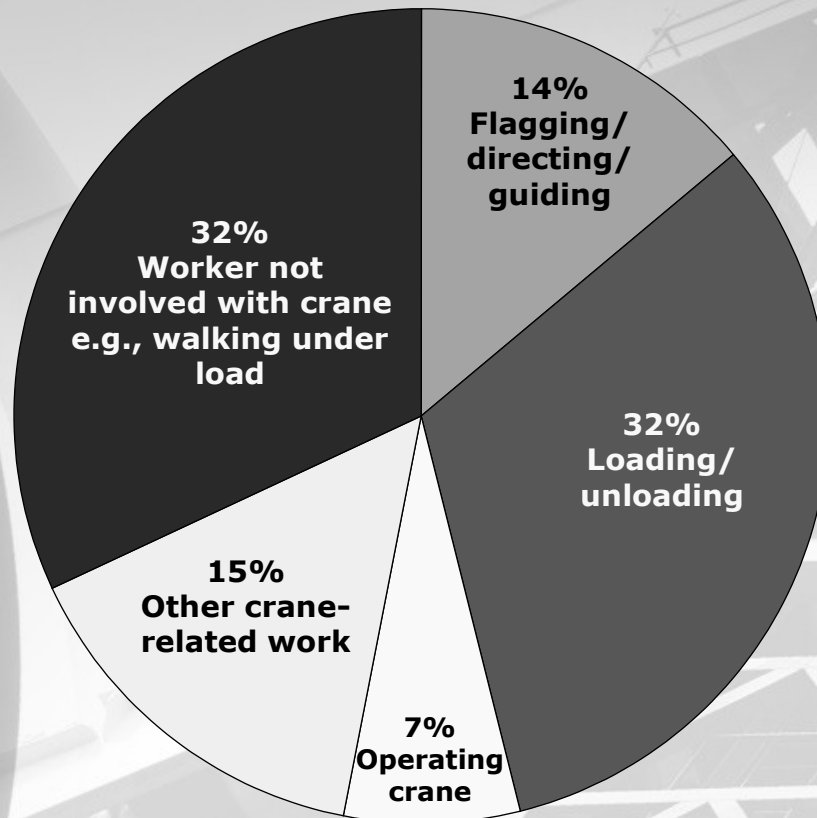
Source: U.S. Bureau of Labor Statistics
Census of Fatal Occupational
Injuries Research File

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Why Workers Died: Struck By Crane Loads

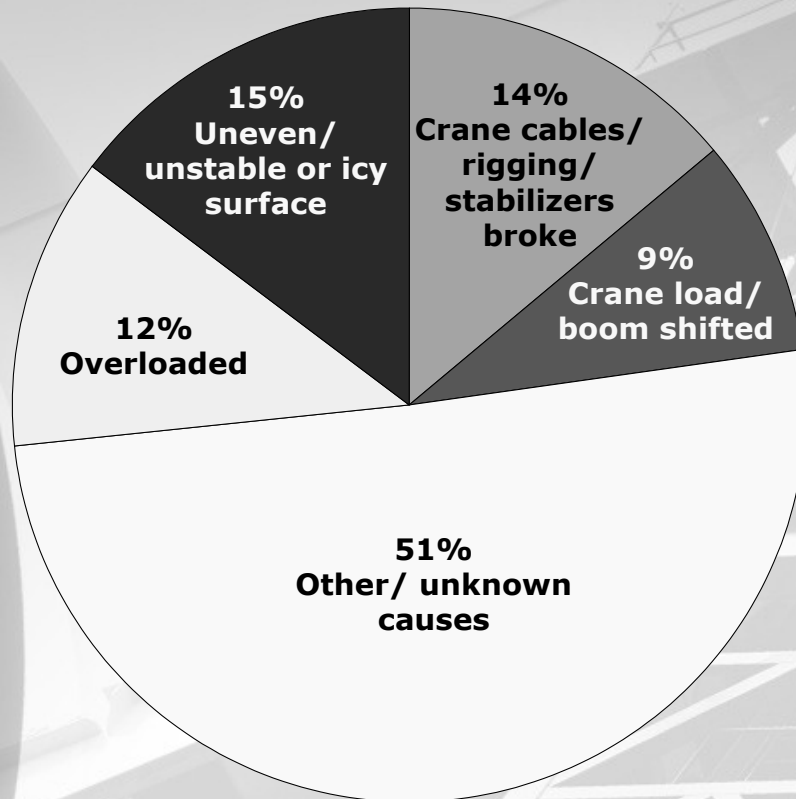


1992 - 2006

Number of Deaths: 132

Source: U.S. Bureau of Labor Statistics
Census of Fatal Occupational
Injuries Research File

Why Workers Died: Crane Collapses



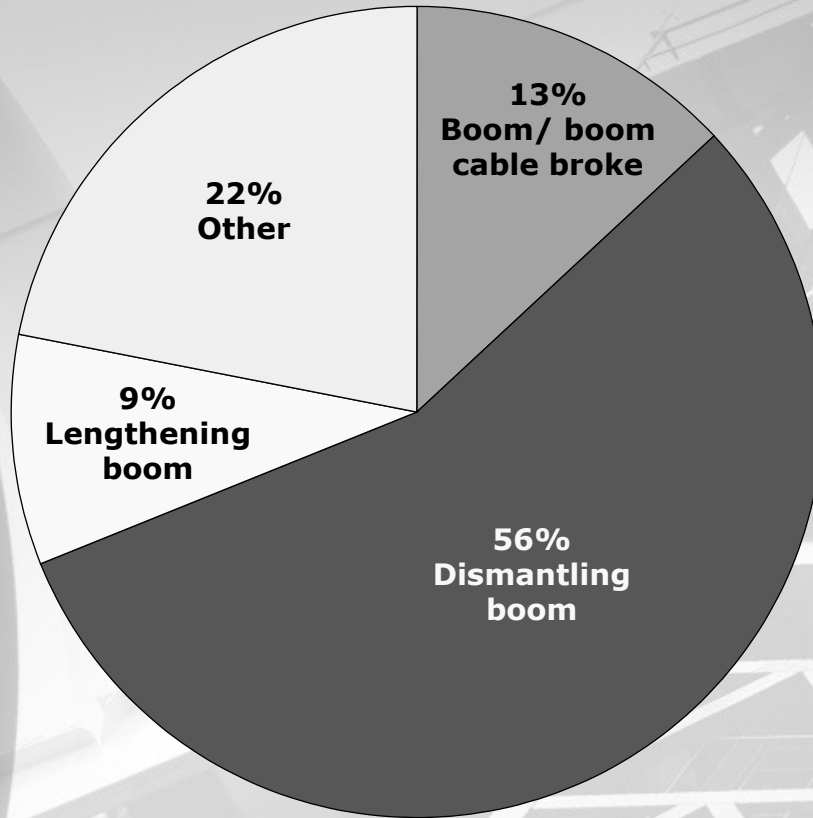
1992 - 2006

Number of Collapses: 81

Number of Deaths: 89

Source: U.S. Bureau of Labor Statistics
Census of Fatal Occupational
Injuries Research File

Why Workers Died: Struck by Falling Booms/Jibs



1992 - 2006

Number of Deaths: 64

Source: U.S. Bureau of Labor Statistics
Census of Fatal Occupational
Injuries Research File

Types of Cranes Involved in Fatalities

- Mobile cranes
- Tower cranes
- Floating or barge cranes
- Overhead cranes

Types of Cranes Involved:

Mobile Cranes

At least 71% of all crane-related incidents involved mobile cranes

Mobile cranes were involved in:

- 80 of 95 (84%) of overhead power line incidents
- 37 of 59 (63%) of crane collapses
- 35 of 59 (60%) of struck by boom/jib incidents



Types of Cranes Involved:

Tower Cranes

Tower cranes were involved in:

- 16 of 306 (5%) of all crane related incidents
- 5 of 24 (21%) of struck by crane load incidents
- 5 of 59 (8%) of struck by boom/jib deaths

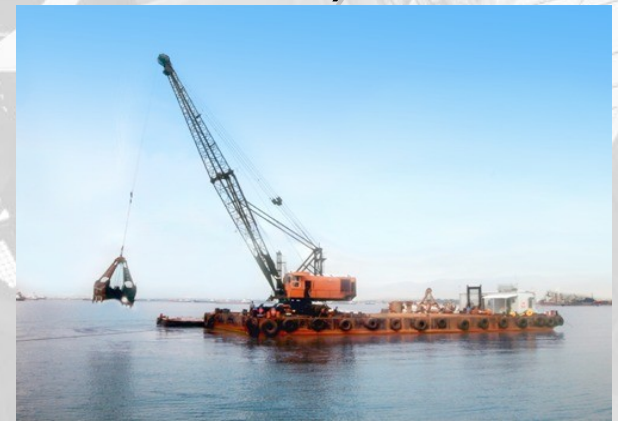


Types of Cranes Involved:

Other/unspecified cranes

Other/unspecified cranes were involved in 24% of all crane related incidents, including:

- 13 floating or barge crane incidents
- 12 overhead crane incidents
- 49 unspecified cranes (16% of incidents)



Recommendations for Crane Operation

- Crane operators should be certified by a nationally recognized organization. (e.g., NCCCO)
 - Presently only 15 states and a few cities (including New York City and Chicago) require certification.
- Crane riggers and signalpersons should be trained and tested.
- Only trained workers under the supervision of a qualified person and competent person should assemble, modify or disassemble cranes.
- Crane loads should not be allowed to pass over workers or street traffic.

Recommendations for Crane Inspections

- Cranes should be disassembled and inspected yearly, monthly, or when control changes hands.
 - These crane inspectors should be certified
 - OSHA requires that they be competent persons
- Cranes should be inspected daily or in event of an incident by the crane operator or other competent person

Status of OSHA Crane Standard

- On July 9, 2004, the Federal Advisory Committee on cranes and derricks (C-DAC) reached a consensus for a new crane and derricks standard.
- On September 18, 2008, OSHA published on its website a Draft Proposed Rule for Cranes and Derricks in Construction.
- On October 8, 2008, OSHA published its proposed crane rule in the Federal Register, with comments due by December 8, 2008.

For Further Information

- Mike McCann: mmccann@cpwr.com
- Electronic Library of Construction Safety and Health (eLCOSH): www.elcosh.org
- CPWR – The Center for Construction Research and Training: www.cpwr.com

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