

**Precast/Prestressed Concrete Manufacturing Industry**



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This study reflects on information derived from insurance claims. These claims form a database that can be analyzed to determine the many and varied causes of loss. CNA Risk Control presents this study of specific CNA claims and industry trends. We begin with a review of exposures inherent to the precast/prestressed concrete manufacturing industry and conclude with suggested practices to manage these risks.

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## Precast/Prestressed Concrete Manufacturing Industry Defined

For the purpose of this study, manufacturing companies are defined to include:

- Precast concrete manufacturing
- Prestressed concrete manufacturing
- Concrete pavers, brick or block manufacturing
- Water and wastewater product manufacturing
- Utility and industrial products manufacturing
- Sanitary and storm water products manufacturing

### Precast/Prestressed Concrete Manufacturing: An Analysis of Loss Exposures in the Industry

Precast/prestressed concrete manufacturing locations face a variety of loss exposures, such as employee injuries, automobile accidents, equipment theft and damage, and liability claims from many areas that include damage to property of others. There are also unique exposures, depending on the job site environment, that may require the need to address cargo securement, equipment storage, and overhead electrical power lines. The following is a review of those exposures based on an analysis of CNA claims between January 1, 2004 and December 31, 2007.

### Workers' Compensation Claims

#### *Top Five Incidents Causing the Injury, Shown as a Percentage of Total Claims*

<b>Incident Type</b>	<b>Percent of Total Claims</b>
Struck By / Struck Against	33%
Material Handling and Ergonomic Factors	20%
Slips, Trips and Falls on Same Level	14%
Caught In, On, or Between	9%
Exposure To/Contact With Chemical Agents	8%

#### *Top Five Incident Types, Shown as a Percentage of Total Claim Dollars*

<b>Incident Type</b>	<b>Percent of Total Claim Dollars</b>
Struck By / Struck Against	44%
Caught In, On, or Between	17%
Slip, Trip and Falls on Same Level	13%
Fall from Elevation	9%
Material Handling and Ergonomic Factors	8%

This data indicates the types of incidents most likely to cause worker injuries are being struck by or against, manual handling, and falls on the same level. These incident types also represent the highest severity of claims (cost in terms of claim dollars paid).

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## Struck By or Struck Against Incidents

A major cause of work injuries results from contact with material being moved, either manually or by powered vehicles. Workers are also injured by struck by material such as metal pouring forms or finished concrete products. Losses also include injuries when tools are dropped from elevated work areas onto people working below.

## Caught In, On, or Between Incidents

Injuries occurred to the thumb, fingers, and hand caused by squeezing, pinching, or crushing between a moving object and a stationary object.

## Slips, Trips, and Falls on the Same Level Incidents

Injuries were caused by working on uneven, wet, icy, or muddy ground. Claims are also incurred by workers mounting and dismounting equipment, forms, and vehicles, working in areas of poor housekeeping, and climbing on stairs, ladders, or forms.

## Material Handling Incidents

These claims are caused by manual handling of a variety of work related materials, forms, and tools. Claims occur when workers misjudge the weight of materials, carry material over an uneven ground, or try to prevent a heavy metal form from falling over. Although strides have been made to move forms and products, the staging area has many obstacles to be overcome.

## Exposure To/Contact with Chemical Agents

The two predominate issues were skin dermatitis and eye irritation due to contact with chemicals, concrete, and dust.

## Property Claims

### *Top Five Incidents Causing the Loss, Shown as a Percentage of Total Claims*

<b>Incident Type</b>	<b>Percent of Total Claims</b>
Wind Damage	35%
Theft	17%
Physical Damage to Equipment or Products	13%
Lightning (No Fire)	9%
Burglary / Theft	4%

### *Top Five Incident Types, Shown as a Percentage of Total Claim Dollars*

<b>Incident Type</b>	<b>Percent of Total Claim Dollars</b>
Wind Damage	85%
Physical Damage to Equipment or Products	7%
Burglary / Theft	3%
Lightning (No Fire)	2%
Struck By Vehicle	2%

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Property claim data shows that wind damage, fire, and theft were the most frequent type of loss. Wind damage losses were a result of hurricanes along the Gulf Coast region.

## Auto Claims

### *Top Five Incidents Causing the Loss, Shown as a Percentage of Total Claims*

<b>Incident Type</b>	<b>Percent of Total Claims</b>
Crossed Center Line	33%
Rear-ended Other Vehicle	15%
Failed to Observe Clearance	9%
Fire	8%
Other Vehicle Caused Accident	8%

### *Top Five Incident Types, Shown as a Percentage of Total Claim Dollars*

<b>Incident Type</b>	<b>Percent of Total Claim Dollars</b>
Crossed Center Line	33%
Rear-ended Other Vehicle	15%
Failed to Observe Clearance	9%
Vehicle Fire	8%
Object or Material Fell from Vehicle	7%

Analysis of auto claims reveals hitting others from behind, crossing into the other lanes, failing to yield, and failing to observe clearance represent the most costly type of accidents. In addition to property costs, vehicle accidents account for a sizable percent of the cost of worker injuries. Most vehicle accidents can be prevented by the driver.

### **Rear-ended Other Vehicle**

Rear-end type accidents occur when drivers follow too close for conditions, when the driver was distracted, or when a vehicle has mechanical problems. Drivers are distracted by situations outside of the vehicle and inside the vehicle. Companies must help control distractions inside the vehicle and make drivers aware of maintaining adequate distance from the vehicle ahead of them.

### **Lane Change/Crossing Center**

These claims are caused by drivers not being aware of or not checking blind spots around the vehicle before changing lanes and putting themselves in the wrong lane. Driver distraction appears to have led to some crossing centerline accidents.

### **Failed to Yield**

These accidents involve running red lights, pulling out in front of others and some unmarked intersection situations. The driver should never assume you have the right of way or that they know what the other driver is going to do.

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## Failed to Observe Clearance

Overhead clearance was the problem in many of these claims. Failing to lower the bucket or arm on excavators and backhoes and hitting the bridges, power lines and covers like at a gas station were most common. Turning too tight and hitting a pole, building, parked vehicle, etc., was the second most common clearance type accident.

## Liability Claims

### *Top Five Incidents Causing the Loss, Shown as a Percentage of Total Claims*

<b>Incident Type</b>	<b>Percent of Total Claims</b>
Physical Damage to Property	32%
Struck By	27%
Vehicle Accident	23%
Caught In, On, or Between	5%
Struck Against	5%

### *Top Five Incident Types, Shown as a Percentage of Total Claim Dollars*

<b>Incident Type</b>	<b>Percent of Total Claim Dollars</b>
Struck By	58%
Vehicle Accident	30%
Physical Damage to Property	6%
Caught In, On, or Between	4%
Struck Against	1%

Data indicates the two most frequent types of claims were struck by and physical damage to property. Vehicle accidents under liability exposure occur when a vehicle driven by others is damaged or involved in an accident.

## Struck By

Struck by losses were caused by forklifts striking or running over the feet of pedestrians.

## Vehicle Accidents

Vehicles driven by others were damaged by hitting equipment on the job site, running into job materials on the roadway.

## Suggested Practices

The analysis of claims data presented in this study suggests many different practices that could be effective in reducing losses.

Implementation of a comprehensive safety program that addresses employee safety and the safety of others is critical to reducing losses in all areas. An effective safety program that raises employee safety awareness and serves to control and eliminate hazards can help minimize the impact of loss sources.

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## Employee Safety

Struck by, caught in, on or between, and manual handling are loss leaders in the analysis to PCMAP employees. A safety program must include a pre-planning process that includes a documented job site review to ensure that both the manufacturing plant and the yard site are ready for work to begin. CNA can provide assistance in your pre-planning efforts. We review procedures to evaluate the physical relationship between workers and moving equipment, traffic, use of personal protective equipment, material staging procedures and physical condition on the construction site.

CNA's ErgoPRO, a six-step ergonomic process that provides work method techniques, engineering guidelines and information required to integrate the human factor with the overall production process, offers specific solutions to the frequent injuries related to the manual handling of materials. CNA's "Motion is Money," a process to enhance worker productivity and reduce risk factors, directly relates ergonomic concepts to measurable improvements in productivity and profitability.

## Forklift and Powered Vehicle Safety

Forklifts, in addition to pallet trucks, are powered vehicles used to move heavy materials, forms, and finished products. Employee injuries, damage to property, and liability accidents can result from unsafe operating procedures, lack of knowledge on how to operate powered equipment, and not enforcing safety rules. CNA provides assistance in forklift accident reduction through its Dock Safety Program, which addresses the following four issues that can lead to accidents:

- Provide driver training
- Install traffic mirrors at blind spots and intersections
- Install and verify working conditions of light and/or horn warning devices when vehicles are traveling
- Mark safe walking areas to protect pedestrians from vehicle traffic

## Auto

Fleet safety is an essential part of any utility contractor's safety program. Many contractors are not aware they have vehicles that come under the Federal Motor Carrier Safety Regulations (FMCSR) or how to comply with these regulations. Contractors that allow employees to use their own vehicle for company business have an exposure from these non-owned vehicles. Claim analysis shows hitting other vehicles from behind is the most common and costly type of vehicle accident for utility contractors. This type accident is over two times as frequent and costly as any other type of vehicle accident.

CNA's Fleet Institute for Contractors provides information necessary to understand and improve your fleet safety program and measure your results. Topics include how to prevent rear-end and lane change accidents, controlling accident scene and true cost of accidents, non-owned vehicles, cargo securement, negligent entrustment, driver selection, and review of the most common FMCSR that apply to contractors and ways to comply with them.

CNA offers one-hour programs for managers and supervisors on improving your fleet safety program, along with online training for drivers.

## Liability

Vehicle accidents traveling to and from the work zone are the most frequent and severe type of liability accidents. Failure to observe clearance and striking fixed structures, abutments, and overhead utility lines when entering the worksite off the access road have high repair costs and create the greatest hazard to workers and others in the area.

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Liability claims are associated with vehicle accidents when the driver is distracted using their cell phone, radio, or GPS. CNA offers a training program for owners and managers about the importance of eliminating or reducing in-cab behaviors.

### **Property**

A program for managing property risks is crucial to the prevention and mitigation of property losses. Property protection programs include emergency response plans, self-inspection procedures, and maintenance of fire protection systems with control of ignition sources.

Plans need to be in place to respond to developing situations, such as windstorms, earthquake, floods, and loss of electrical power. The plans should encompass immediate action taken to minimize damage as well as plans to return the company to full production.

### **Theft / Vandalism**

The extent of physical security measure depends largely on the type of facility, the value, and quantities of material to protect. Properly installed and maintained exterior lighting will help detour the opportunity for the crime to go unnoticed. Portable hand tools should be picked up and locked in gang boxes overnight, weekends, and holidays. Keys to each vehicle and lift truck should be labeled and stored in a lock box. Lift trucks should be parked inside the building overnight to prevent vandalism to windows. Mobile, pull-form-behind equipment, such as air compressors, should have wheels locked to a large, stationary object.

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## School of Risk Control Excellence

### Courses applicable for the Precast/Prestressed Concrete Manufacturing Industry:

- Building Your Business Continuity Plan (BCP) – Building Your Business Continuity Plan (BCP)** – Covers elements necessary in a BCP strategic plan to help restore and keep critical business functions going within the first 72 hours of a disaster
- Case Management — A Partner with Workers' Compensation** – Addresses techniques to maximize the delivery of healthcare and return-to-work outcomes
- Concepts of Business Continuity Planning (BCP) Overview** – Provides a strategic plan to help restore and keep critical business functions going within the first 72 hours of a disaster.
- Department of Transportation (DOT) Primer** – Covers how to comply with DOT regulations, such as driver qualification files, vehicle inspection and maintenance, substance abuse and driver training requirements
- Drug and Alcohol Prevention** – Identifies ways to properly manage the work risks and legal issues of drug screening with pre-employment, post-accident, reasonable suspicion and random testing
- In-Cab Behaviors** – Introduces the human factors concept of addressing vehicle accidents
- Incident Investigation** – Identifies causes that can lead to incident investigation steps
- Lower Back Pain and Manual Material Handling** – Covers symptoms, characteristics and risk factors that contribute to the development of lower back pain
- Managing Hearing Loss Trends** – Provides risk management steps to limit hearing loss claims
- Precast/Prestressed Manufacturing Boot Camp** – Addresses industry loss drivers from a safety and industrial practice viewpoint
- Property Protection for Small Business Owners** – Covers common hazards, special hazards and preventive techniques for both
- Return-to-Work (RTW) Process** – Explores the elements of the RTW process and workers' compensation requirements
- Slips, Trips and Falls** – Explains how to implement an effective slip, trip and fall prevention program

To find out more about these classes, go to: [www.cna.com/riskcontrol](http://www.cna.com/riskcontrol)

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To learn more about how CNA Risk Control can work with you to help you mitigate risks, please speak with your local independent agent, call us toll-free at 866-262-0540, or view our Risk Control tools online at [www.cna.com/riskcontrol](http://www.cna.com/riskcontrol).

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