



Integrity of structures

Issued March 2018

When the integrity of a structure is compromised, there is the potential for fatal and serious injuries. The most common types of structural failure include rust and corrosion, cyclones or strong winds, design faults, inadequate alterations of design, poor construction of structures and lack of proper assessment. There are three components to consider when addressing the causation factors for failure: design, construction and maintenance. Communication between competent people during these three phases is important for the integrity of structures.

The snapshot covers the period from 1 December 2016 to 30 November 2017 when there were 1,197 injuries and 2,399 notifiable incidents (specific reporting categories). Of these, 14 injuries and 54 notifiable incidents involved structural integrity.

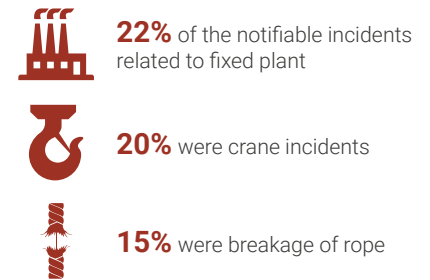
@DMIRS_WA

Department of Mines, Industry Regulation and Safety

Injuries by severity



Notifiable incidents by top three description summary



Injuries by type



Injuries by nature



Injuries by employment type



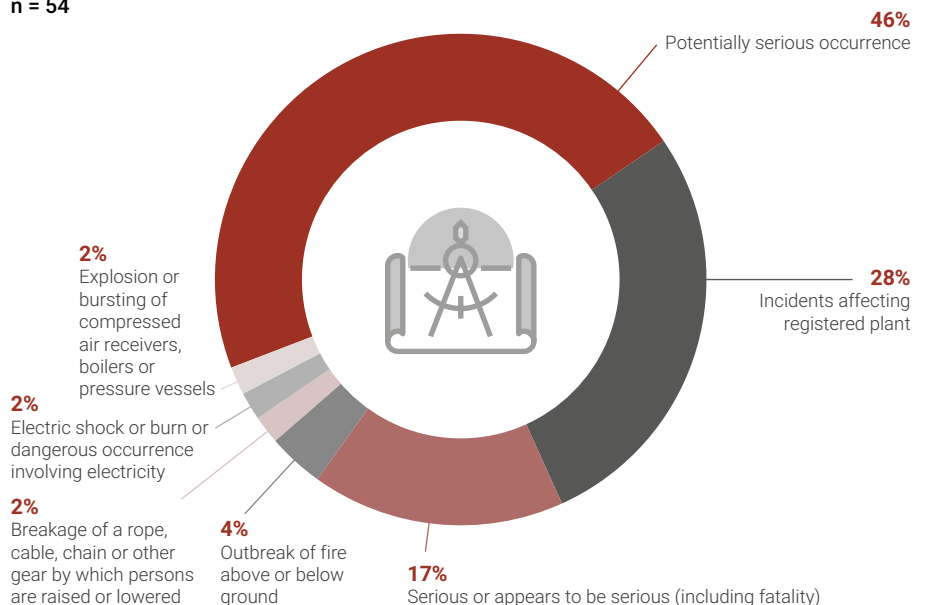
Injuries by part of body



Notifiable incidents by reporting category

These notifiable incidents have been identified as having structural integrity as a contributory factor

n = 54



Spotlight on Mines Safety Bulletin No. 124

Structural safety of buildings, plant and other structures

16 September 2015

Key message:

Structural integrity and safety rely on good practice and communication throughout a structure's life cycle – from its design, to its construction (including decommissioning) and during its use. If this does not happen, or is ineffective, it compromises worker safety and can lead to structural failure (see alerts below).

Spotlight on Mines Safety Significant Incident Report No. 244

Failed gantry bridge crushes boilermaker working in thickener tank – fatal accident

03 August 2016

A boilermaker died after being crushed and pinned to the floor by the collapse of a corroded gantry in a thickener tank.



Key message:

Maintaining a structure in a safe and stable working condition at all stages is important, including during the cutting and removal of structural components. When demolishing structures there are responsibilities that must be met, including the appointment of competent supervisors and compliance with the relevant Australian Standard.

Spotlight on Mines Safety Bulletin No. 140

Structural collapse of buildings and temporary structures during wind events

27 March 2017

Buildings can collapse when their strength is inadequate for the load applied, such as the action of wind.



Key message:

Consider the site's wind speed when designing or supplying buildings. Ensure they are constructed to the design specification, and inspected by competent persons to confirm quality of construction and that they are being safely maintained.

Recent example



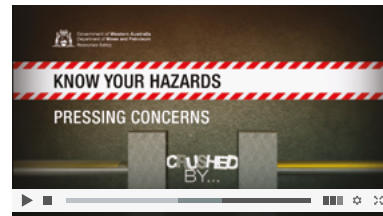
Incident affecting registered plant 20/09/17

While preparing for a planned rope replacement on a crane, a technician observed that the main boom section had slightly deformed. On closer inspection, it was found that the top wear pad had been forced against the outer boom by the inner boom. The job was stopped and supervisor was informed. The equipment has been tagged out of service, pending an investigation and repair of the crane.

KNOW YOUR HAZARDS

Are you aware of your workplace hazards?

Know Your Hazards is a video series produced by the Department for the resources industry. The series targets common workplace hazards that have injured or killed. Let's work together to reduce the risk of these accidents happening.



View or download our hazard awareness videos at www.dmp.wa.gov.au/HazardVideos

Safe work practices

Examples include:



Only use the structure for the purpose for which it was designed unless modifications have been design checked, tested and approved by qualified professionals



Carry out annual structural inspections to produce detailed reports of any repairs required



For older plant, carry out a structural design audit to ensure structural steel components are not overstressed, and the supporting structure complies with the relevant Australian Standards

For more information see *Large working structures – mines safety matters pamphlet*