

# SAFETY ALERT

OCTOBER 2016

## TILT-UP PRE-CAST PANELS BRACING & INSTALLATION

### Background

Two tilt-up pre-cast concrete elements weighing approximately 10 tonne each collapsed onto and crushed two construction workers as they were being installed on the CrisCon construction site at Eagle Farm on Thursday 6th October 2016 at approximately

4.00pm.

The excavation that the workers were installing the tilt up panels in was so confined that when the panels toppled over there was no escape route essentially leaving the workers trapped.

*Images taken after the incident occurred*



*Inadequate bracing on the Eagle Farm Site resulting in double fatality*



*Mock up of the incident*

### Possible cause of the collapse

- Insufficient propping of the tilt-up panels
- Insufficient exclusion zone
- Panel design relied on the interlocking of the four tilt-up panels which may have been a contributing factor of the lack of propping
- Insufficient access and egress
- Confined excavation
- No secondary back up system
- Panels relied on horizontal bracing attached to the ends of the panel for stability. They were not reliant on the traditional method fixing to a solid concrete mass
- No work method statement sighted
- Tilt-up panels to be secured prior to the crane being unhooked

- Proper fixing point is as per the engineer's specification
- Cast in anchors are preferred rather

than drill in anchors

### Recommendations

- Review work method statements
- Ensure tilt-up panels are propped as per the propping plan
- Access and egress is free from obstruction
- Ensure appropriate exclusion zones are at least the height of the panel plus 50%
- Ensure a safety back up system is used
- Prop all tilt-up panels prior to unhooking the crane
- Bracing as specified by an engineer
- Braces fitted with locking pins
- Establish an emergency evacuation route

There is a Queensland Code of practice 2003 for pre-cast and tilt-up construction which is presently under review. This document gives

guidance for those working with or handling concrete elements. A

concrete element means a concrete panel or other pre-cast concrete element made in either an on-site or off-site casting yard that is then lifted into position to form part of a building.

The Tilt-up and pre-cast code of practice provides the following information on the installation of tilt-up and pre-cast concrete.

- Bracing
- Dead man design
- Drill in anchor design
- Crane issues
- Work systems
- Panel lifting and erecting



### Proper examples of bracing tilt-up pre-cast

For any further advise please contact OHS Coordinators Royce Kupsch on 0411 636 414 or Andrew Ramsay on 0400 544 430.