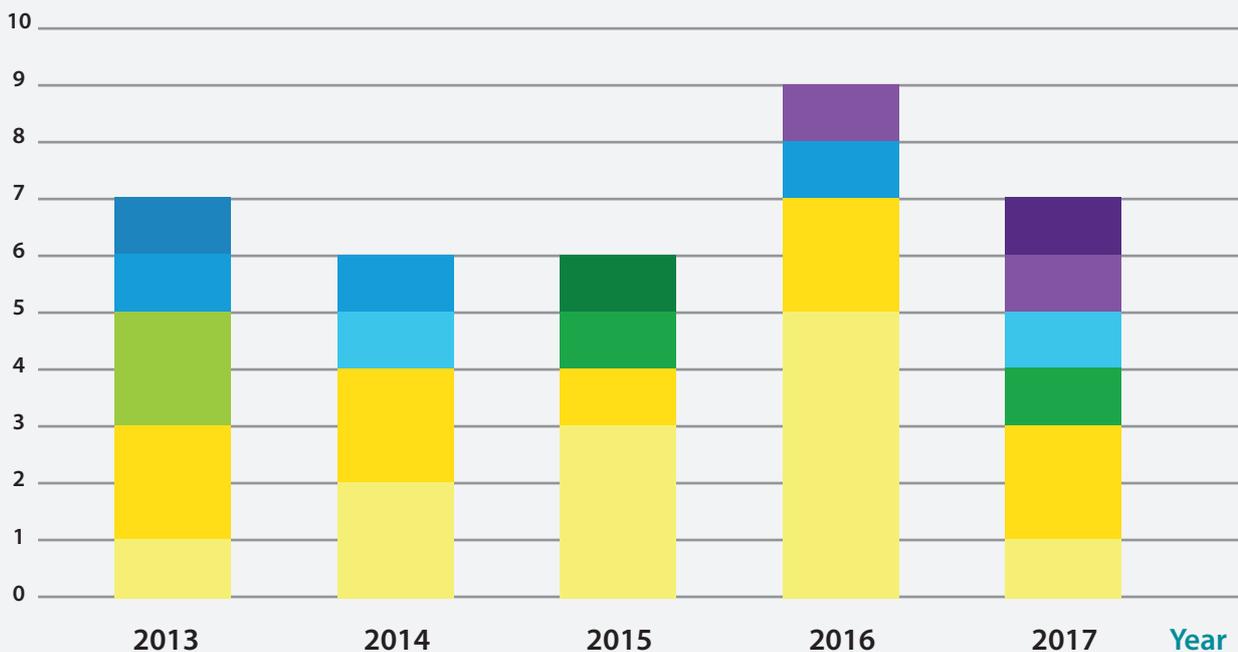


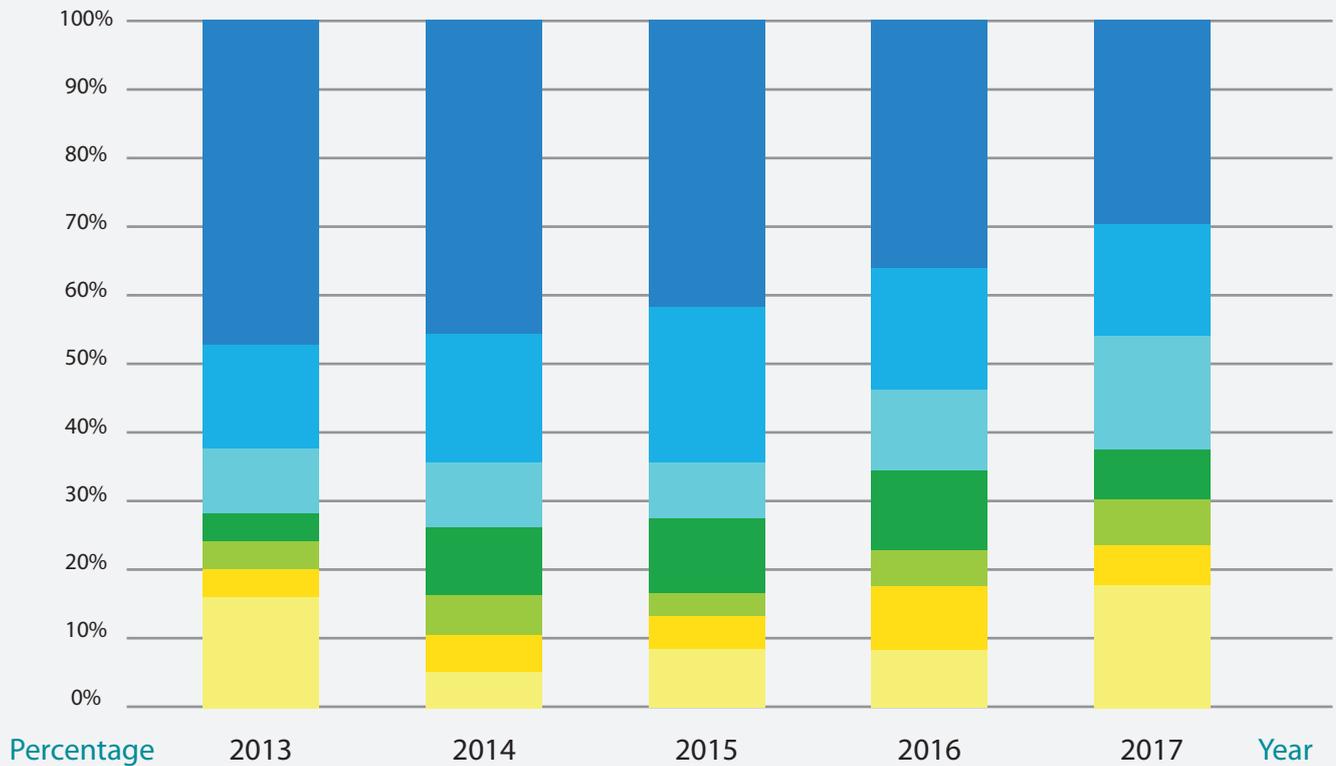
# MANUFACTURING SECTOR: AN INCREASING CONTRIBUTOR TO WORKPLACE FATAL INJURIES

Fatal injuries in the Manufacturing sector has decreased from 9 in 2016 to 7 in 2017 ( see Graph 1). However, when compared to the other sectors, the Manufacturing sector is the second largest contributor to the total number of workplace fatal injuries in Singapore, behind the Construction sector and on par with the Transportation and Storage sector. The percentage of workplace fatal injuries in the Manufacturing sector has steadily increased from 9% to 17% since 2015 ( see Graph 2 ).



**Graph 1: Workplace fatal injuries in Manufacturing sector from 2013 to 2017**

- Metalworking
- Food & Beverage Manufacturing
- Manufacturing - Tanning & Dressing Leather
- Manufacturing - Rubber & Plastic Products
- Manufacturing - Petrochemical
- Manufacturing - Electronic, Computer & Optical Products
- Manufacturing - Non Metallic Mineral Products
- Manufacturing - Other Transport Equipment
- Manufacturing - Wood & Products of Wood
- Manufacturing - Furniture



Graph 2: Proportion of workplace fatal injuries by industry 2013 to 2017

- Other
- Marine
- Wholesale & Retail Trade
- Administrative & Support Activities
- Manufacturing
- Construction
- Transport & Storage

Source: Workplace Safety and Health Report – National Statistics  
2014,2015,2016 and 2017,  
Workplace Safety and Health Institute, Singapore

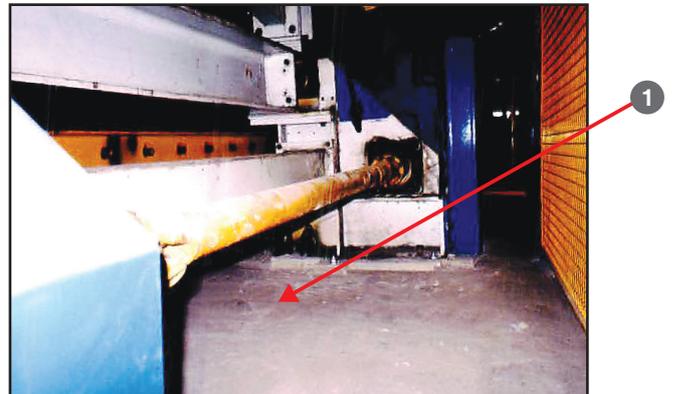
Among the Manufacturing sector, about 77% of the workplace fatal injuries occur in Metalworking companies and Food & Beverage Manufacturing companies. Most fatal injuries happened when employees were caught in between objects ( e.g., while operating industrial machines ) or slips, trips and falls ( e.g., slippery floors ) at workplace.

# CASE STUDY OF A FATAL INJURY IN A METALWORKING COMPANY

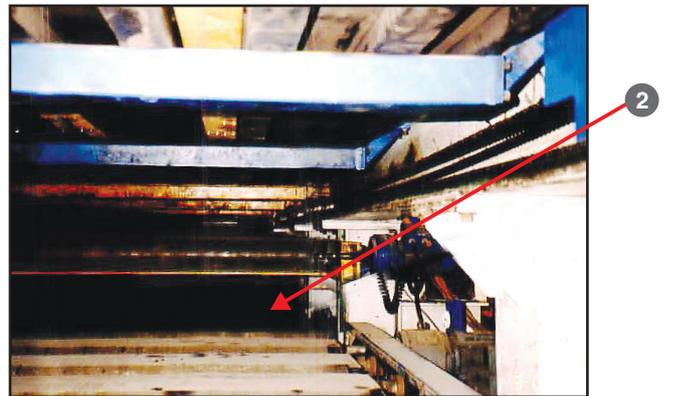
To work on a steel mesh machine. On the third day, they were working within the fenced area of the machine. After some time, one of the workers left the work area to restock on cement.

When he returned, he found the other worker lying beneath the steel mesh machine. The worker was sent to the hospital and subsequently succumbed to his injuries. The cause of death was reported as - acute respiratory distress syndrome and fractured ribs and pulmonary contusions.

It was found that two sliding gates were part of the fencing with interlocking sensors. However, the interlocking sensors were not connected and not working properly. In addition, there was testing and commissioning of the wire mesh machine when the accident occurred. There was also failure lock-out tag-out the machine while grouting was done at the machine.



1. Location of the accident.



2. The deceased was found on the floor underneath the machine here.

## As such, the following recommendations are for the industry to consider:

- Testing and commissioning should not be carried out at the same time as grouting work.
- Safety interlocking sensors should be working at all times.
- All workers should be briefed on and understand the hazards and risks involved and contents of safe work procedures.
- All workers should clear away from the machine before conducting testing and commissioning of machine.

# CASE STUDY OF A FATAL INJURY IN A FOOD AND BEVERAGE MANUFACTURING COMPANY

A worker slipped, fell and hit her head on the floor at a bread cooling area of a factory. She became unconscious and subsequently passed away at the hospital. The worker was walking to the freezer when she slipped and fell. The floor outside the freezer was wet due to condensation. The worker was wearing her own footwear which was not anti-slip. There was no anti-slip mat or flooring, and no hazard signage to inform workers of any slippery hazard.



1. Freezer

2. Possible location where the worker slipped and fell

**The following recommendations and learning points can be taken into consideration when doing Risk Assessment:**

- Provide workers with appropriate non-slip footwear.
- Conduct footwear inspection regularly for wear and tear and replace them when necessary.
- Floor slip resistance ( such as non-slip tiles, slip resistant coating and anti-slip mats/taps/stickers ).
- Carry out regular floor inspection and maintenance to make sure that floors are in good condition and safe. If the floor becomes slippery during the course of work, dry or degrease the floor as often as reasonably practicable.
- Provide suitable hazard signage to indicate slippery floor or cleaning in progress.
- Train workers to identify slip hazards at their workplaces.

To better assist companies in complying with the relevant requirements, the WSH Council has developed resources such as guidelines, case studies, checklists that can be used to identify, evaluate and mitigate WSH risks as listed below. Employers are encouraged to use it where relevant.

## WSH COUNCIL MATERIALS FOR MANUFACTURING COMPANIES

1. WSH Guidelines on Managing Safety and Health for SMEs in the Metalworking Industry
2. WSH Guidelines on Safe Use of Machinery
3. 6 Handy Tips for Safe Hands
4. ABC Checklist for Working Safely on Machines
5. Case Studies for Metalworking Industry
6. Case Studies for Food Manufacturing