

Falls from a Height



Falls from a Height

The bigger picture

Falls from a height are an everyday reality of working life — and life in general. No industry or occupation, age or gender, is exempt from the possibility of a fall from a height while at a workplace. As our 2013 Statistics feature will illustrate, falls from a height are more common than most may think and reinforces the importance of recognizing fall hazards and taking action to prevent them.

Defining falls from a height

For the purpose of our statistics, what defines a fall from a height, or fall from elevation? In short, a fall is categorized when a person is injured after falling or jumping — from a ladder, scaffold, building, roof, or other elevated place or working area — landing, with impact, on the ground or surface below.

Falls from a height do not include a fall on the same level or falls from a moving vehicle.

Work-related deaths and serious injury

In the 2004–2013 period, falls from a height accounted for 6 percent of all work-related deaths.

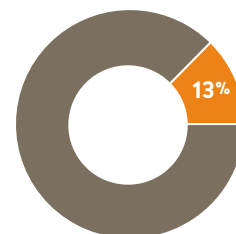
Further breaking this down reveals the following:

- Incidence by industry and occupation — In the 2004–2013 period, the greatest number of work-related deaths related to falls from a height largely happened in three subsectors: General Construction (47 percent), Accommodation, Food and Leisure Services (9 percent), and Other Services (7 percent). More specifically, in the construction industry falls from a height accounted for 54 percent of all work-related deaths.
- Incidence by age — Of all work-related deaths caused by falls from a height that took place in the 2004–2013 period, workers who lost their lives ranged from 20 to 87 years, with a median age of 48. Forty of the workers, or 43 percent, were 55 or older.
- Incidence by gender — Of the 92 workers who lost their lives from 2004–2013 due to a fall from a height, 84 of them, or some 91 percent, were male.
- How they happened — Of the total incidents that occurred during the decade, 22 percent of all work-related deaths due to falls from a height were attributed to falls from buildings or structures, 20 percent were the result of falls from ladders, and 13 percent resulted after a fall from a roof.



From 2004 to 2013, falls from a height accounted for 22,610 or 12.6 percent of all serious injuries; with 41.6 percent of those serious injuries being fractures. Our data identifies key injuries as a result of a fall from a height. In the 2004–2013 period they accounted for:

- 40 percent of all hip fractures
- 27 percent of other fractures
- 15 percent of intra-cranial injuries, including concussions
- 13 percent of strains other than back strain

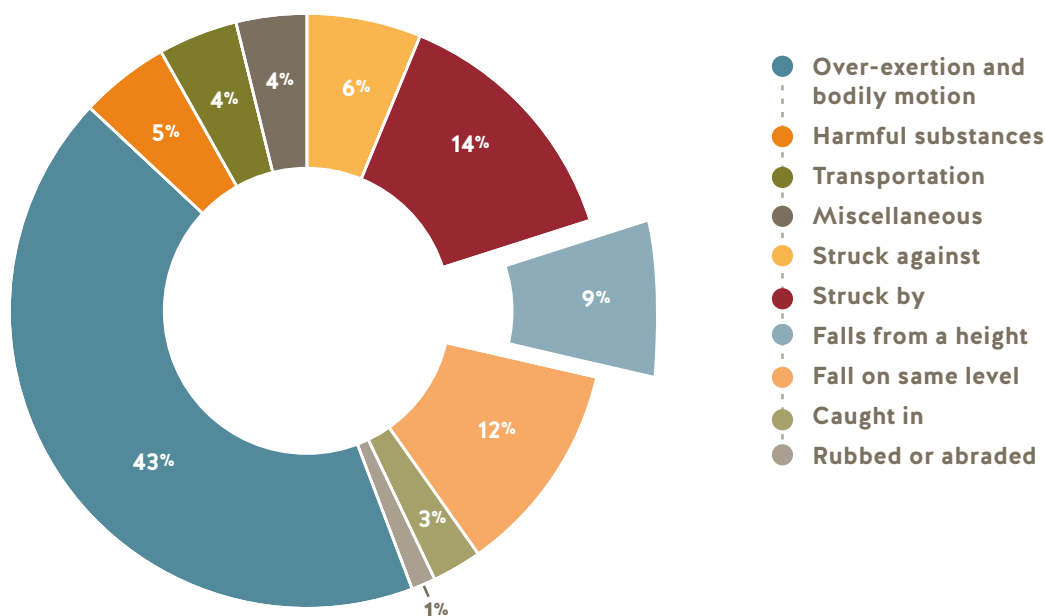


Falls from a height =
12.6% (22,610)
of all serious injuries

Workplace injuries and accepted claims

During the period, falls from a height consistently accounted for 9 percent of all workplace injuries, totaling approximately 51,000 incidents. The following chart helps further set this in context, illustrating the major types of incidents:

Bigger picture: major types of incidents, 2004–2013



The 51,000 incidents accounted for 14 percent of injuries with some form of permanent impairment, including long-term disabilities. It is also important to note, an injury caused by a fall from a height can have a lasting impact, in some other form, such as chronic pain or a resulting psychological disorder.

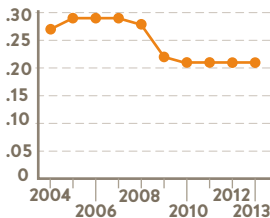
Falls from a height accounted for 14 percent of the total number of work days lost and accounted for 16 percent of claims costs.

Falls from a Height

Based on these overall numbers, it's clear that falls from a height have an important impact on workers and their families. Falls from a height are not limited to the construction industry, with the hospitality and retail sectors including commercial cleaning, tree services, landscaping and many others contributing to the numbers.

General trends

While falls from a height consistently accounted for between 8 and 9 percent of all injuries with time-loss in the 2004–2013 period, with the peak in 2007 and again in 2008, at 9.2 percent. The injury rate for falls from a height has declined and remained stable every year since 2008, as shown in the following table:



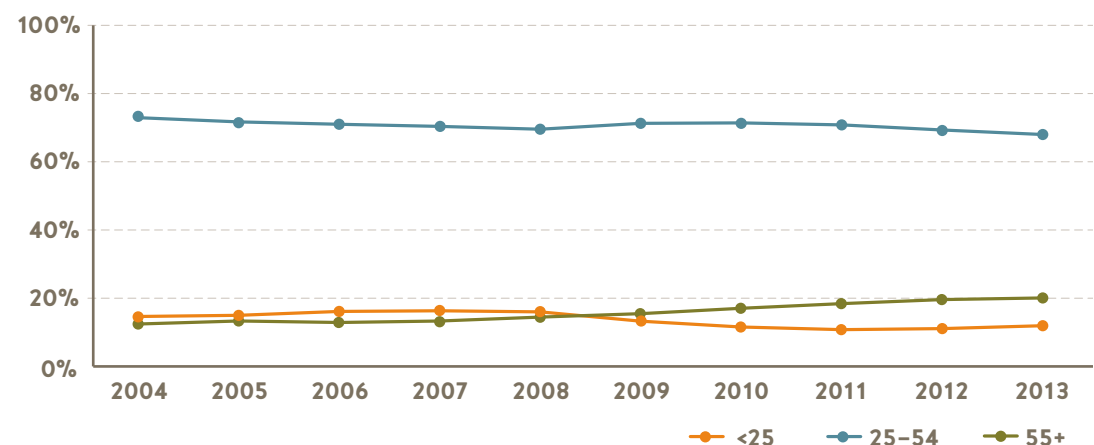
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
% total	8.4%	9.0%	9.1%	9.2%	9.2%	9.1%	9.0%	8.7%	8.5%	8.6%
Injury rate	0.27	0.29	0.29	0.29	0.28	0.22	0.21	0.21	0.21	0.21

Taking this a step further, in the 2004–2013 period, falls from a height impacted between 4,500 and 6,100 workers each year. In other words, over the decade more than 51,000 workers suffered a work-related injury as a direct result of falling from a height.

Age

Over the 10-year period, 2004–2013, falls from a height were on the decline for those under 25, and those in the 25–54 age group, but on the rise for those 55 and older. During the period workers between 25–54 years old represented the majority of workers who suffered an injury as a result of a fall from a height, totaling 71 percent.

Distribution of accepted claims due to falls from a height

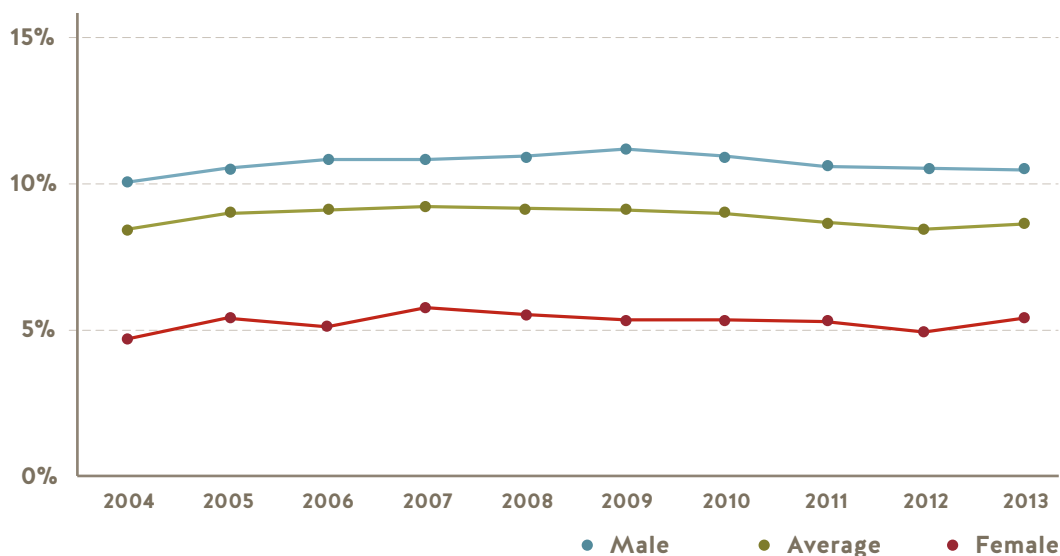


Note: Older age groups are much more likely to suffer a serious or fatal injury as a result of a fall from height.

Gender

In looking at data related to falls from a height more closely, another trend that is apparent is a significantly higher proportion of males who suffered an injury as a direct result of a fall from a height. This mirrors the general statistics with the majority of men employed within the top five subsectors (see page 15).

Percentage of accepted claims due to falls from a height to all injuries



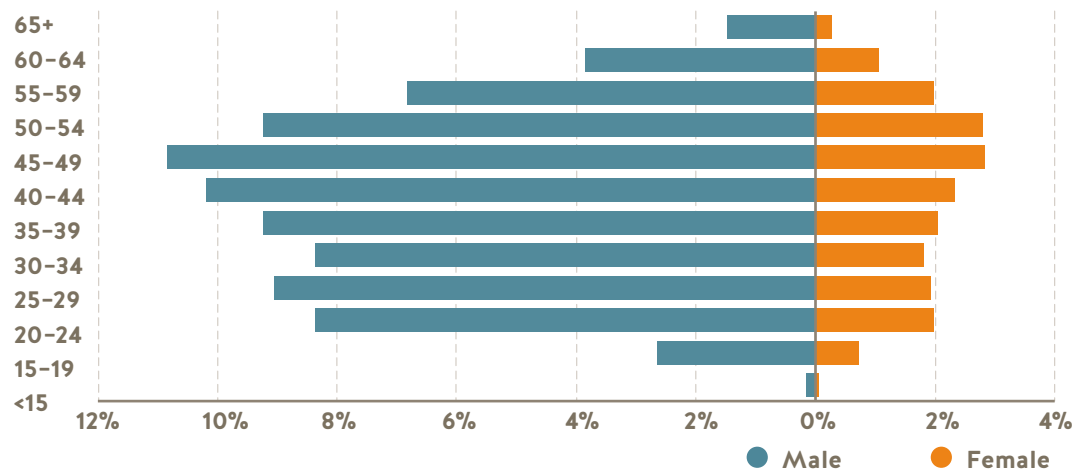
Over the 10-year period, 80 percent of falls from a height injuries with time-loss were sustained by male workers.

 = 80%
2004-2013

Falls from a Height

Age and gender

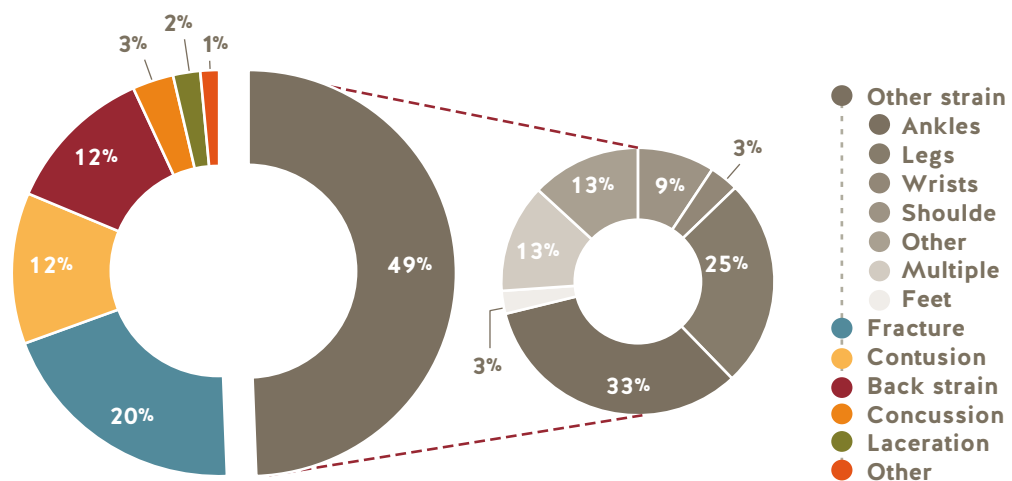
Having looked at falls from a height by age and gender separately, it's useful to consider the two factors together as shown in the following chart:



As already noted, during the 2004–2013 period males showed a disproportionate tendency to injury as a result from a fall from a height. What's apparent in the chart is that males between 45 and 49 years showed the highest number of incidence. It is worth noting males 45–49 are the second largest workforce group in B.C., and are likely to be employed within sectors with a high incident of fall from a height injuries.

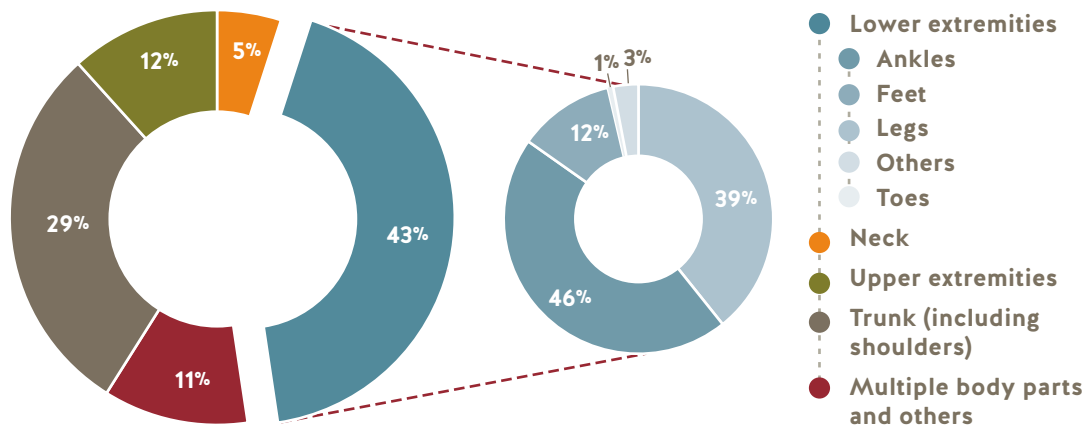
Nature of related injuries

As the following two charts show, more broadly and in more specific detail, nearly half of all fall from a height injuries resulted in strains — other than back strain, a category unto itself and the fourth most common type of injury. As the first chart shows, fractures and contusions, in that order, were the second and third most common injury types from 2004–2013.



Body parts impacted

In looking at the body parts most impacted by falls from a height in the 2004–2013 period, lower extremities are the predominate body part sustaining injury.



The findings here are not surprising in considering how a typical fall scenario would unfold and which body parts would be most likely injured in breaking a fall.

Injury rate by industry subsector

Turning to the specific industries and top five subsectors reveals some strong correlations between specific industries and incidence as depicted in the following table:

Sub-sector code	Subsector name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10 years
7210	General Construction	1.18	1.17	1.17	1.12	1.07	0.84	0.84	0.82	0.74	0.75	0.96
7030	Forestry	1.13	1.01	0.99	1.01	0.92	0.74	0.80	0.65	0.78	0.83	0.91
7220	Heavy Construction	0.81	1.59	0.69	1.20	1.05	0.75	0.32	0.61	0.49	0.33	0.74
7320	Transportation and Related Services	0.82	0.88	0.79	0.76	0.74	0.64	0.61	0.61	0.57	0.54	0.69
7310	Warehousing	0.70	0.84	0.78	0.86	0.71	0.62	0.69	0.42	0.48	0.36	0.63
	All B.C.	0.27	0.29	0.29	0.29	0.28	0.22	0.21	0.21	0.21	0.21	0.25

An important finding is these five subsectors all significantly exceeded the average injury rate for fall from a height for all B.C., at 0.25. Looking more specifically at the data, the top five subsectors accounted for almost 60 percent of all fall from a height injuries.

Falls from a Height

It's also worth noting that several of the top five subsectors already identified, ranked among the top five subsectors in both fall from a height injuries and all other injuries, as shown in the following table:

Subsector	Fall from a height	Subsector	All other injuries
General Construction	26%	Health Care and Social Services	14%
Transportation and Related Services	11%	General Construction	12%
Other Services	8%	Retail	11%
Accommodation, Food, and Leisure Services	7%	Accommodation, Food, and Leisure Services	9%
Retail	7%	Transportation and Related Services	8%

Occupation

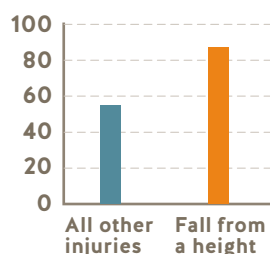
As far as specific occupations, the data shows that the top five occupations accounted for 60 percent of all fall from a height injuries in the 2004–2013 period. As also suggested in the table that follows, several of the same occupational areas also rank in the top for all other injuries:

Occupational group	Fall from a height	Occupational group	All other injuries
Construction trades workers	30%	Service workers	17%
Transport operators	13%	Construction trades workers	15%
Fabricating and related workers	7%	Health care workers	10%
Cleaning workers	5%	Transport operators	8%
Materials handling workers	5%	Fabricating and related workers	8%

Duration¹

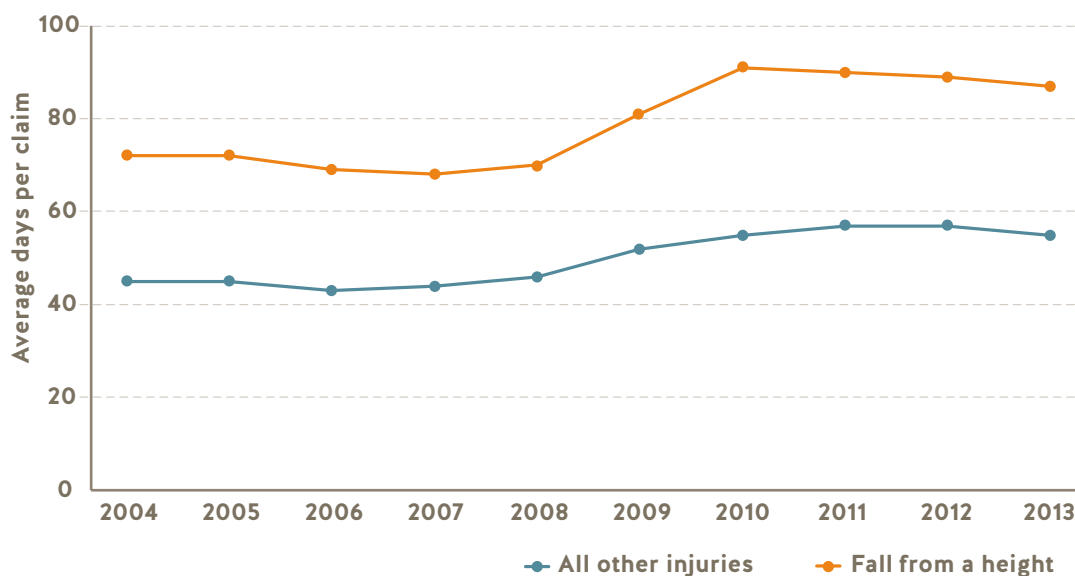
Duration, considered by WorkSafeBC to be the average number of work days lost on short-term disability claims, is shown to be consistently higher on fall from a height injuries than all other injuries, as shown in the table and chart that follow:

2013 duration



Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fall from a height	72	72	69	68	70	81	91	90	89	87
All other injuries	45	45	43	44	46	52	55	57	57	55

¹ Duration is calculated according to the Association of Workers' Compensation Boards of Canada (AWCBC) methodology.



In 2013, duration for falls from a height versus all other injuries is approximately 58 percent higher than other injuries.

Days lost and costs paid¹

Over the past 10 years, while falls from a height injuries accounted for about 9 percent of all injuries on a yearly basis, on average they represented about 14 percent of days lost and 16 percent of claim costs paid. Fall from a height injury claims with time lost from work are, on average, \$14,000 more costly than all other injuries with time lost from work; demonstrating, from a financial perspective, the impact of a fall from a height injury.

- Average cost per claim — all injuries: \$16,500¹
- Average cost per claim — falls from a height: \$29,800¹

**Avg. cost
per claim**
\$29,800

10-year period: 2004–2013	Fall from a height	All other injuries
Days lost	3.9 million	28.2 million
Claim costs ¹	\$1.5 billion	\$9.4 billion

What cannot be captured in these figures is the additional cost to the employer and worker. Employer-specific costs associated with a claim are many and include: accident investigation, hiring of replacement staff, retraining and overtime, and the possibility of increased premiums as a result of the claim. Importantly, this calculation cannot attempt to not quantify the pain and suffering experienced by an injured worker and their family.

¹ Based on 2004–2013 Fully Reserved Claim Cost (FRCC) data.

Falls from a Height

Falls from a height: residential construction¹

As identified throughout our feature topic, falls are significant overall source of workplace injury. Data indicates falls in the construction sector, specifically within residential construction,¹ are a source of concern for workers in British Columbia.

Carpenters, labourers, and roofers in the Lower Mainland experience a significant number of time-loss injuries as a result of falls from a height. Almost all of these injuries occur to males, and are spread across all age groups.

Between 2004 and 2013 there were 4,680 fall-related injuries in the residential construction industry:¹

- 1,509 involved falling from a ladder
- 1,465 involved falling from a roof or scaffolding

Falls from a height are the most frequent and costly incidents in the industry, representing:

- 22 percent of all claims
- 50 percent of all claim costs

Influencing factors

Through qualitative focus groups we identified some of the attitudes and beliefs around falls among construction workers. Workers and employers in the focus groups identified time and economic constraints; lack of training; and a need for leadership as it pertains to safety, as influencing factors in falls from a height.

In addition, the culture within this sector suggests a false sense of security; not wanting to look weak or afraid; getting the job done on time and at the lowest cost; not looking out for others, as well as yourself; and the belief safety is too costly or time consuming, as barriers to engaging in safety practices.

4,680
fall-related injuries

1,509
= falling from
a ladder

1,465
= falling from a roof
or scaffolding

¹ These figures have been calculated based on woodframe residential construction, see the glossary for further information.

Falls from a height: how and why

From 2004 through 2013, ladders, scaffolds, buildings, stairs, roofs, and non-moving vehicles were the places workers most frequently experienced a fall from a height. Falls from non-moving vehicles accounted for 25 percent of all falls from a height injuries. This was followed by fall from a ladder (19 percent) and stairs and steps (16 percent).

Falls from heights happen for many different reasons. Some of the most common “mistakes” responsible for falls typically cited include:

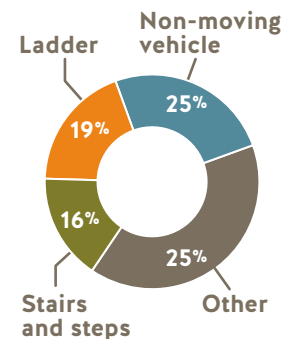
- “The ladder moved”
- A worker slipped on a ladder’s rungs
- Missing guardrails on scaffolding
- Inadequate fall protection
- A worker slipped off a roof

The following offer additional insight into the cause of falls from a height. These incidents occurred during the 2004–2013 period, and resulted in a work-related death.

- A worker was cleaning gutters and fell through cladding, falling 35 feet to the concrete floor below.
- A worker was topping trees when the truck-mounted aerial work platform broke from the supporting boom and the worker fell more than 55 feet.
- A worker fell approximately 18 feet from a fixed ladder while attempting to remove a steam hose from the top of a 400-pound tank.
- A worker fell from an unguarded balcony on the second floor to the ground.
- A worker was on an extended scissor lift that was knocked over by an overhead crane.

These examples underscore that falls from heights happen for a variety of reasons, all under very different circumstances.

Looking at several causes of falls from a height in greater detail yields additional insights.

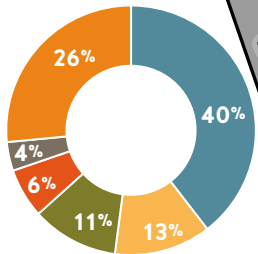


“The ladder moved.”

Falls from a Height

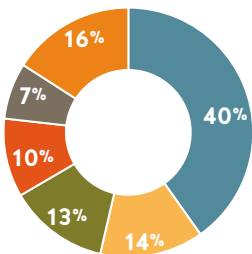
Group 1: Fall from ladder 2009–2013

Top 5 subsectors



- General Construction
- Retail
- Other Services (not elsewhere specified)
- Accommodation, Food, and Leisure Services
- Metal and Non-Metallic Mineral Products
- Others

Injury group

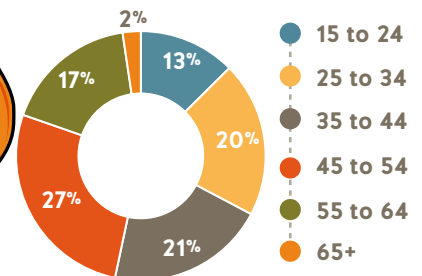


- Sprains and strains of joints and adjacent muscles
- Contusion with intact skin surface
- Fracture of upper limb
- Fracture of lower limb
- Fracture of spine and trunk
- Others

Claims by gender



Claims by age



Severity of injuries

4,259

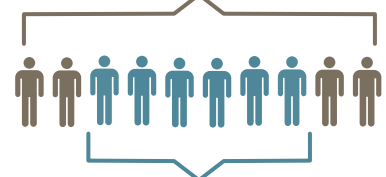
total time-loss claims

\$48,000

average claim cost

104

average work days lost



57%

are serious injury claims

\$82,000

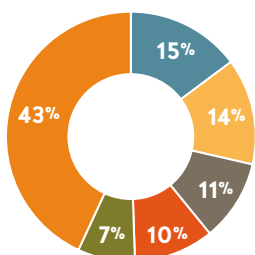
average cost per claim

169

average work days lost

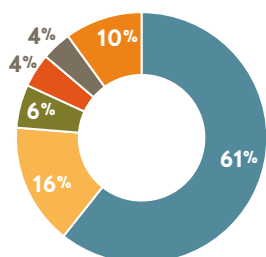
Group 2: Fall down stairs or steps 2009–2013

Top 5 subsectors



- Health Care and Social Services
- Accommodation, Food, and Leisure Services
- General Construction
- Other Services (not elsewhere specified)
- Education
- Others

Injury group



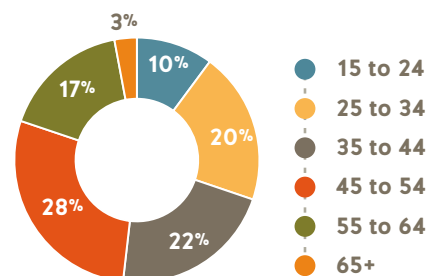
- Sprains and strains of joints and adjacent muscles
- Contusion with intact skin surface
- Fracture of lower limb
- Fracture of upper limb
- Intracranial injury, excluding those with skull fracture
- Others



Claims by gender



Claims by age



Severity of injuries

3,766

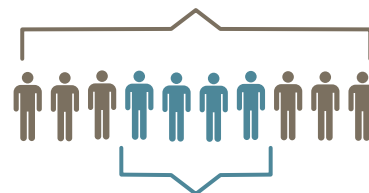
total time-loss claims

\$22,000

average claim cost

65

average work days lost



41%

are serious injury claims

\$48,000

average cost per claim

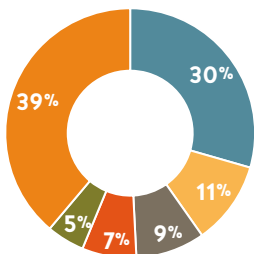
135

average work days lost

Falls from a Height

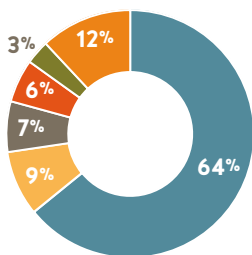
Group 3: Fall/Jump from non-moving vehicle 2009–2013

Top 5 subsectors

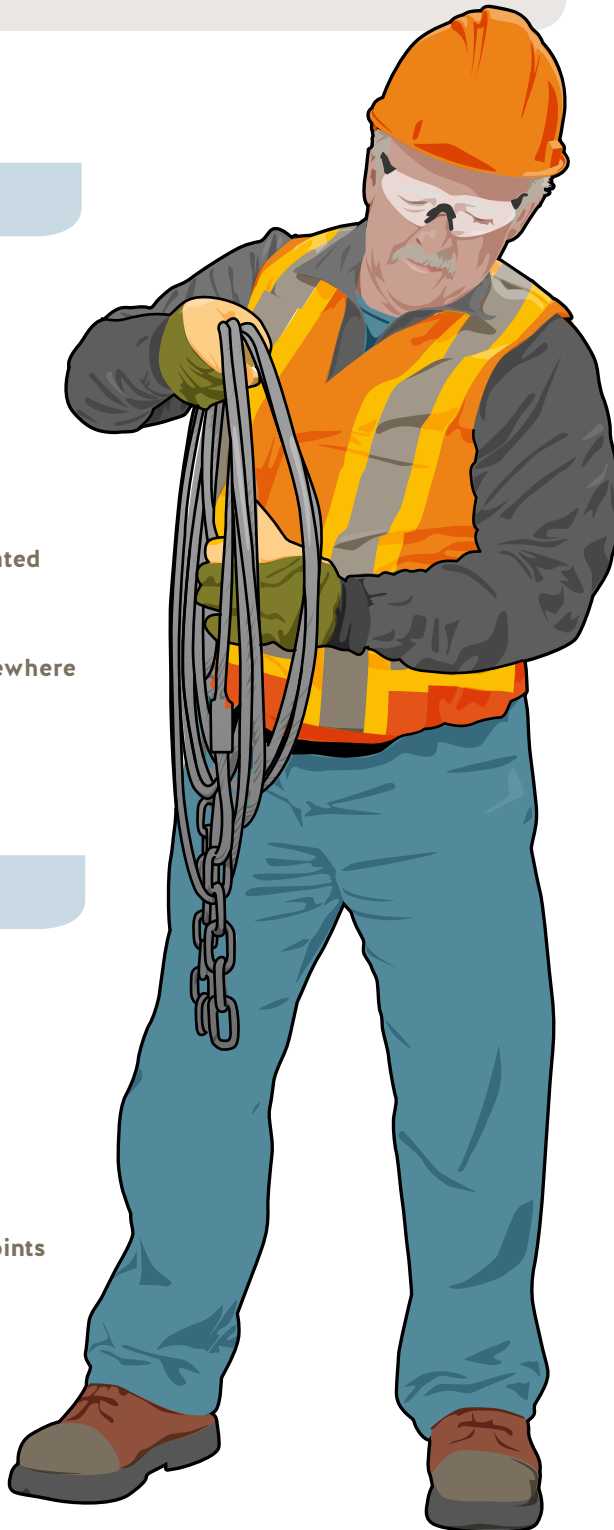


- Transportation and Related Services
- General Construction
- Other Services (not elsewhere specified)
- Public Administration
- Retail
- Other

Injury group



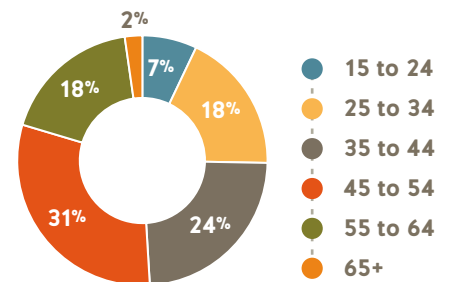
- Sprains and strains of joints and adjacent muscles
- Contusion with intact skin surface
- Fracture of lower limb
- Fracture of upper limb
- Dislocation
- Others



Claims by gender



Claims by age



Severity of injuries

5,703

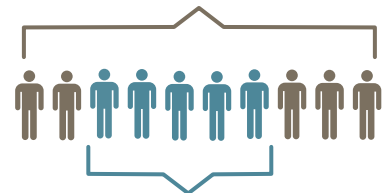
total time-loss claims

\$33,000

average claim cost

81

average work days lost



47%

are serious injury claims

\$66,000

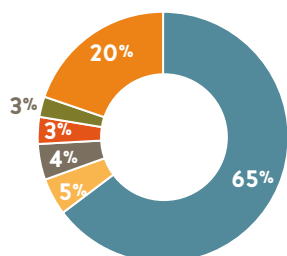
average cost per claim

152

average work days lost

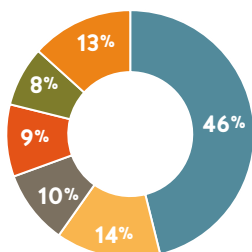
Group 4: Fall from roof/scaffolding 2009–2013

Top 5 subsectors

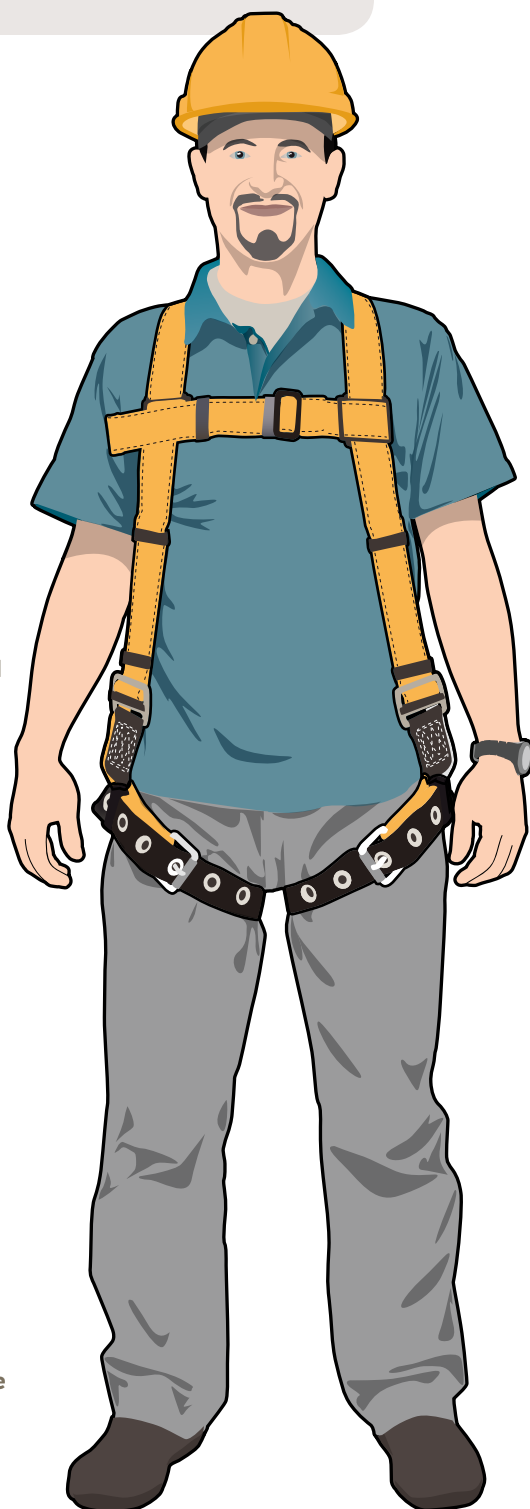


- General Construction
- Other Services (not elsewhere specified)
- Metal and Non-Metallic Mineral Products
- Wood and Paper Products
- Retail
- Others

Injury group



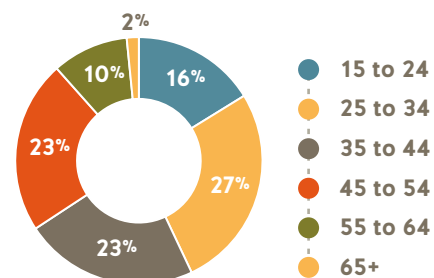
- Sprains and strains of joints and adjacent muscles
- Fracture of lower limb
- Contusion with intact skin surface
- Fracture of spine and trunk
- Fracture of upper limb
- Others



Claims by gender



Claims by age



Severity of injuries

1,902

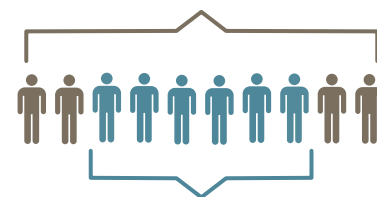
total time-loss claims

\$71,000

average claim cost

126

average work days lost



58%

are serious injury claims

\$119,000

average cost per claim

207

average work days lost

Falls from a Height

Prevention and compliance

WorkSafeBC continues to address falls from a height and other injuries with mandatory orientation and training for workers, with a goal of reducing the incident of injury, disease, and death in the workplace. Prevention officers will continue to address activities that may result in an increased fall hazard and will work to ensure employer and worker health and safety obligations are being met. Further information and resources can be found on [worksafebc.com](https://www.worksafebc.com).