

⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

HIDE ALERTS ×



Products ▾

About ▾

Careers

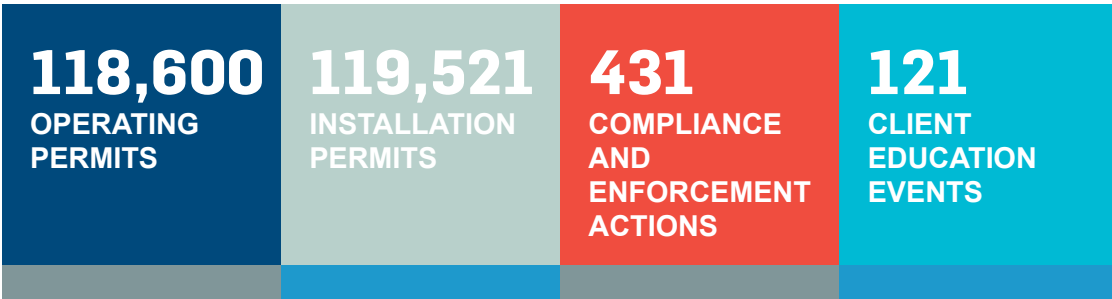


My Accounts

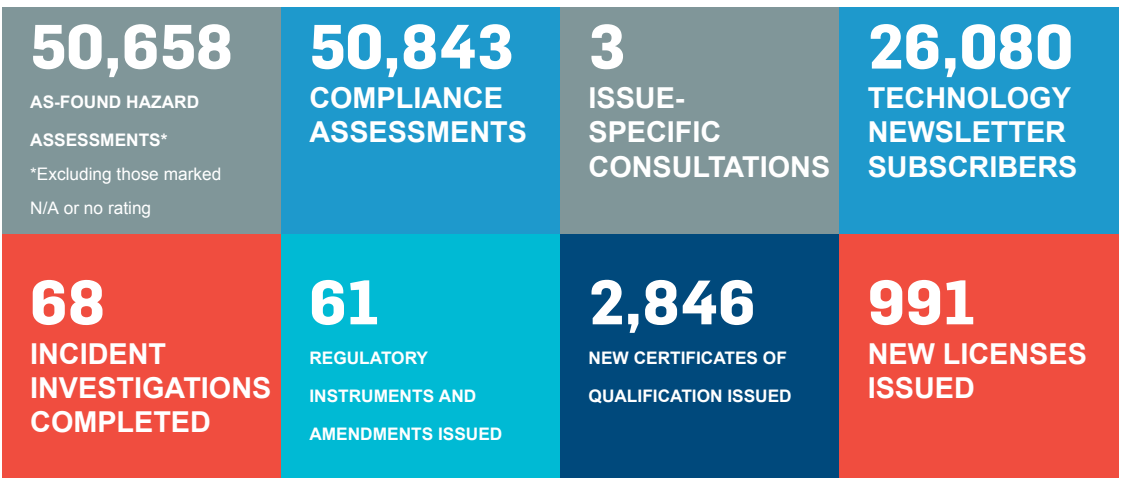
[Home](#) > [State of Safety](#) > [State of Safety 2017](#)



STATE OF SAFETY 2017 MENU
About the State of Safety
Management Discussion



Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	



Understanding & Managing Safety Risk

Technical Safety BC collects a wide range of data to help understand safety risks in British Columbia. While the number of incidents each year gives a sense of how safely work is being performed and helps identify trends, this information reflects just a part of the bigger picture. Here, we provide an overview of our safety oversight in 2017 and our network of efforts in the oversight of the *Safety Standards Act*.

[LEARN MORE >](#)

Understanding Safety Risk

INJURIES

Injuries reported as a result of incidents are an important indicator of impacts experienced from hazards inherent to the operation of regulated equipment. [Learn more](#)

INCIDENTS

Technical Safety BC investigates many incidents to gain an understanding of safety hazards in BC and what actions can be taken to manage those hazards. [Learn more](#)

PERMITS

Technical Safety BC's oversight is based largely on permits issued for regulated work and equipment as well as certificates and licences issued to those performing regulated work. [Learn more](#)

ASSESSMENTS

Technical Safety BC assesses regulated activities within the safety system to evaluate and enforce duty holders' obligations under the *Safety Standards Act* and regulations. [Learn more](#)

Managing Safety Risks

STAKEHOLDER ENGAGEMENT

Technical Safety BC is committed to bringing clients and stakeholders into processes that build and refine the safety system, and we design our stakeholder engagement programs to accomplish this goal. [Learn more](#)

CLIENT EDUCATION

Technical Safety BC facilitates learning that leads to safety by sharing knowledge of hazards, safety best practices, and changes to industry regulations or standards. [Learn more](#)

MEDIA RELATIONS AND COMMUNICATIONS

Technical Safety BC handles media requests and issues proactive media releases to warn of specific hazards, advise the public of steps they can take to reduce their risk of injury, and provide comment and context to safety issues of interest to the media. [Learn more](#)

LICENSING AND CERTIFICATION

Technical Safety BC issues licences to businesses that perform regulated work. Technical Safety BC also issues certificates of qualification to individuals who demonstrate a required level of knowledge and experience. [Learn more](#)

COMPLIANCE AND ENFORCEMENT

REGULATORY INSTRUMENTS AND

Technical Safety BC compels compliance with the Safety Standards Act when safety hazards are found, when individuals have resisted attempts to make their work or equipment compliant, or when individual choose to operate outside the safety system. [Learn more](#)

AMENDMENTS

Technical Safety BC uses regulatory instruments to assist with the administration of the Safety Standards Act and the Railway Safety Act. We also work with the Province of British Columbia to amend the acts and regulations. [Learn more](#)

CODE AND STANDARD DEVELOPMENT

Technical Safety BC employees participate with and lead many technical code and standard developments. [Learn more](#)

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

News

Events

Engagement

Connect with us

Governance and leadership

Careers

Contact us


Sign up for newsletter

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident](#)

[Report an Incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017 - About](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - About

Technical Safety BC receives reports of incidents and conducts assessments of regulated equipment and work. Through investigation, inspection and audit, we advance the knowledge of safety risks and focus attention toward managing those risks.

Our annual State of Safety Report is compiled each year in accordance with the administrative agreement between the Province of British Columbia and Technical Safety BC.

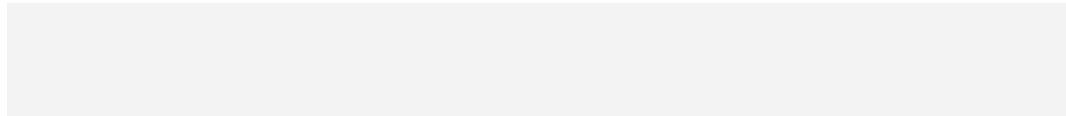
The State of Safety Report provides:

- analysis of incident and injury trends in all sectors regulated by Technical Safety BC;
- explanations for incident and injury trends, particularly significant deviations;
- comparisons, where possible, between BC incidents and those of other jurisdictions;

- responses to information gathered from investigations, including understanding causes and taking necessary action to resolve systemic problems;
- a summary of risk reduction initiatives to educate and communicate with the general public, clients and stakeholders who participate with and benefit from Technical Safety BC safety services;
- a summary of national committees and inter-provincial working groups where Technical Safety BC has participated and provided leadership; and
- details of enforcement actions taken by Technical Safety BC.

This report aims to provide an understanding of safety hazards observed in the last year, as well as our efforts to facilitate duty holder management of those hazards.

For questions or more detailed information about the content contained here, please email media@technicalsaftybc.ca. Our team can advise if the information you are seeking is available to the public and direct you to it, or let you know if a [Freedom of Information \(FOI\) request](#) is required.



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

HIDE ALERTS ✕



[Products](#) ▾ [About](#) ▾ [Careers](#)



My Accounts

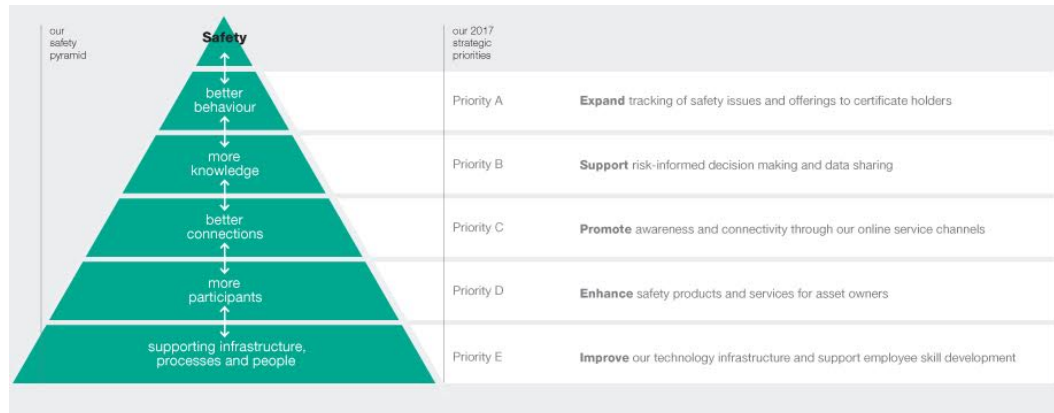
[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)

**STATE OF SAFETY 2017
MENU**

About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Management Discussion

In 2017, we saw 11 fatalities (not including suicides) involving regulated equipment and work. One of those was a carbon monoxide incident where a family of four died, one instance was caused by runaway railway equipment which killed three workers, and another was an ammonia release incident which killed three workers. These tragedies remind us that safety is a shared responsibility and strengthen our resolve to mitigate safety risks.



Risk Trends Viewed in 2017

- Wear-out failures contributed to more than 30% of incidents. These result when owners operate equipment beyond their useful life.
- Failure of users to follow established procedures was associated with approximately 20% of incidents.
- Ineffective servicing of regulated equipment was attributed as the cause of more than 15% of incidents. In these cases, owners or the qualified maintenance persons didn't complete the necessary tasks to keep equipment functioning properly.
- Less frequent but often associated with serious consequences are those cases where safety circuits are defeated by operators and, by consequence, unavailable to mitigate the impact of other failures.

Managing Safety Risks

To better understand safety risks and the best ways to manage them, Technical Safety BC continues to invest in information systems and analytics to complement our safety officers' technical knowledge. Some examples from 2017:

- One test we conducted in the electrical technology suggests that algorithms could help improve our safety officers' ability to find hazards by 85%. Of

course, the skill, expertise and autonomy of our safety officers remain important, as do their relationships with the clients they work with.

- We introduced a new Safety Profile where clients can view the most common hazards, see the performance of their contractors and view their safety performance compared with similar companies in BC.
- We launched collaborations with BC Hydro to better coordinate risks around electrical connections.
- We worked with the refrigeration industry to raise awareness of the dangers of accidental ammonia release and are working with gasfitters to raise their awareness of situations where carbon monoxide could put individuals at risk.

Looking Ahead to 2018

In 2018, we will focus on three strategic priorities:

1. **Technical Safety Risk** - detecting and mitigating emerging and known technical safety risks in the province.
2. **Advancing the Safety System** - using information technology to increase focus on safety.
3. **Province-wide Technical Safety Insight** - taking an integrated approach to technical safety in BC.

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 






[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

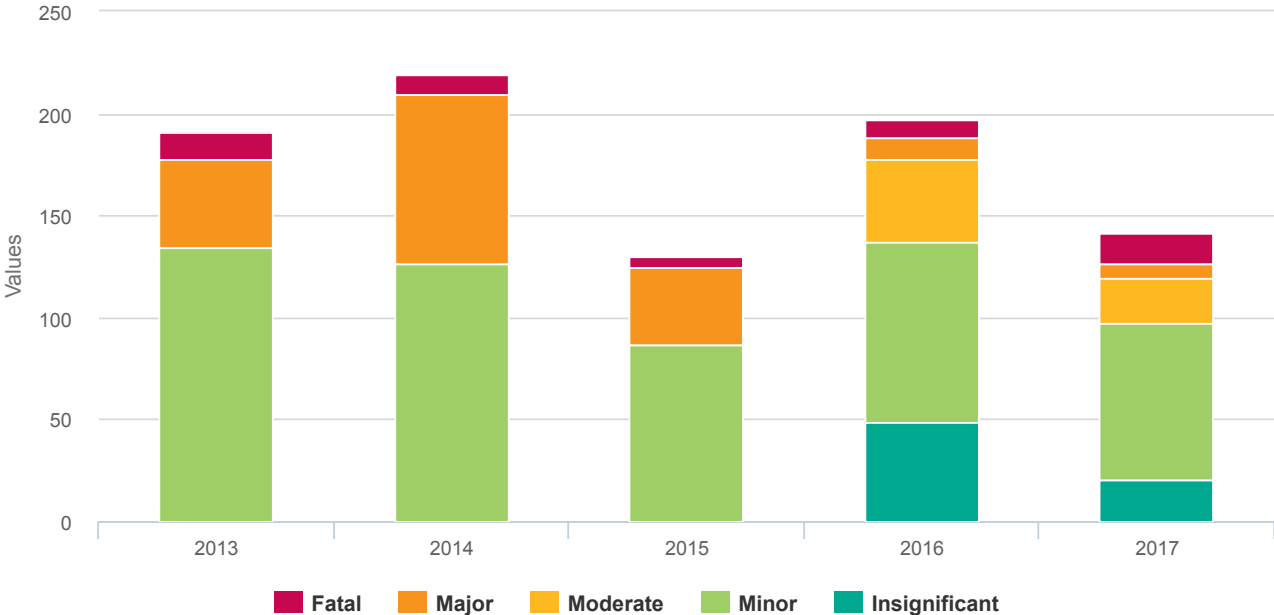
[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Injuries](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	
Managing Safety Risk	
Data by Technology	
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Injuries

Injuries reported as a result of incidents are an important indicator of impacts experienced from hazards inherent to the operation of regulated equipment. Reported injuries are summarized below:

Injuries Reported



Fatal Injuries

In 2017, there were 15 fatalities involving equipment or activities subject to the *Safety Standards Act*. Of these, four were attributed to suicide rather than to failure of regulated equipment. Technical Safety BC has implemented risk reduction measures as a result of learning from investigations into the root causes of these incidents.

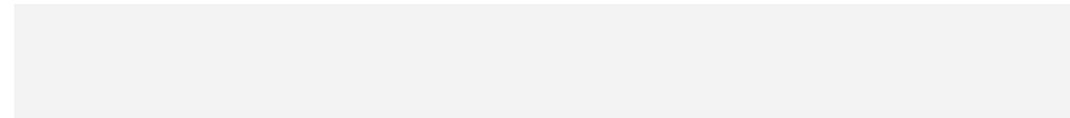
Qty	Injury Type
4	Carbon monoxide exposure
4	Railway suicides (not related to technical equipment failure)
3	Ammonia exposure
3	Contact with runaway railway
1	Conveyor entrapment

Major Injuries

Qty	Injury Type
-----	-------------

2	Contact with runaway railway
1	Electrical burns
1	Fall from escalator handrail
1	Multiple fractures from conveyor entrapment
1	Several burns, loss of consciousness after contact with energized high voltage equipment
1	Upper palate broken/bent, four displaced teeth

Note: Technical Safety BC receives its injury reports and descriptions from operators or first responders at the time of, or immediately following, the incident. Injuries may develop after the initial reports were made to Technical Safety BC and the long-term effects of a resultant injury may not be recorded as part of our investigation.



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Incidents](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Incidents

Incidents involving work or equipment regulated by the *Safety Standards Act* are required to be reported to the appropriate provincial safety manager. We investigate many of these incidents to gain an understanding of safety hazards in BC and what actions can be taken to manage them.

In 2017, Technical Safety BC received notification of 475 incidents involving regulated equipment or work. The causes of incidents vary greatly; however, the following are the influences we identified most frequently from our incident investigations:

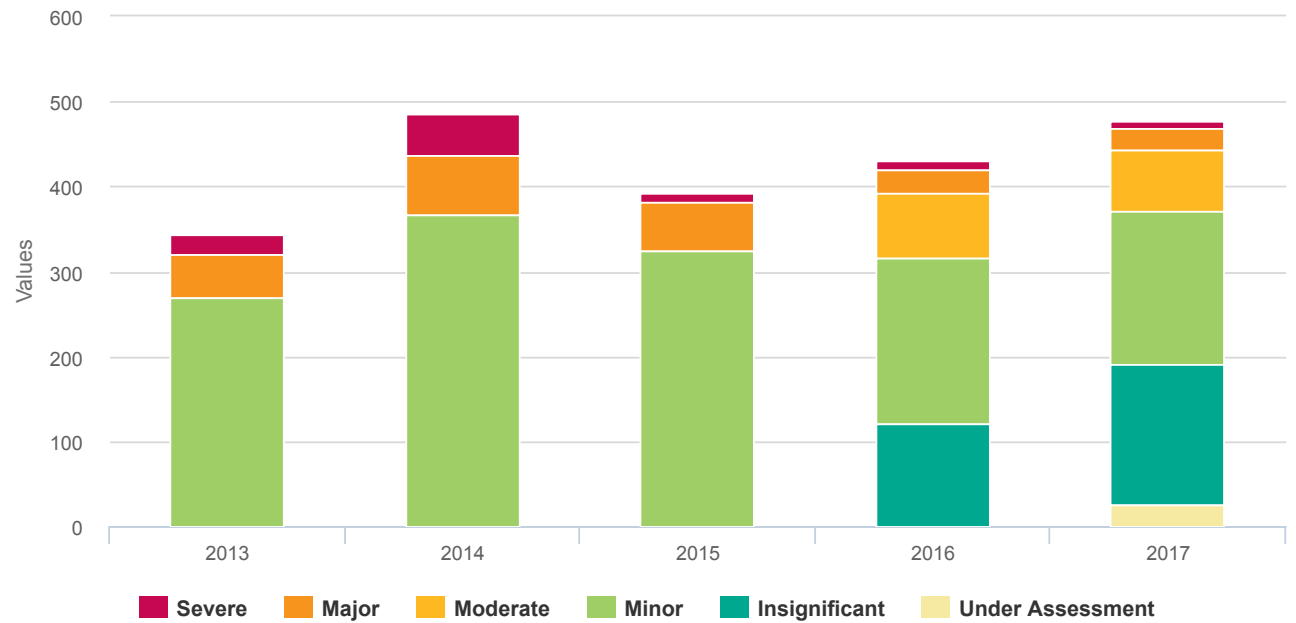


Report an incident or hazard

- Wear-out failures caused by owners operating equipment beyond its useful life contributed to more than 30% of incidents we investigated in 2017.
- Approximately 20% of incidents were associated with users' failure to follow established procedures.
- Over 15% of incidents in 2017 were attributed to ineffective servicing of regulated equipment. Owners or the qualified maintenance persons didn't complete the necessary tasks to keep equipment functioning properly.
- Less frequent but often associated with serious consequences are those cases where safety circuits are defeated by operators and therefore cannot mitigate the impact of other failures.

Technical Safety BC uses the learnings from these failures to inform our risk prevention strategies. Incidents identified as UNDER INVESTIGATION were open at the time of report compilation.

Reported Incidents



Severe Incidents in 2017

Qty	Incident Type
5	Railway incidents
1	Carbon monoxide exposure
1	Conveyor incident
1	Ammonia release incident

Major Incidents

Qty	Incident Type
7	Fire incident

6	Railway incidents
2	Contact with energized high voltage equipment
2	Uncontrolled gas release
2	Component failure
1	Conveyor entanglement
1	Elevator entrapment
1	Fall from escalator handrail
1	Passenger carrier (gondola) collision with return station
1	Rider injured at waterslide exit area
1	Uncontrolled elevator acceleration

Incident Data

Incidents are defined as a failure of a regulated product, work or operation that caused damage or injury. Incidents involving work or equipment regulated by the *Safety Standards Act* are required to be reported to the appropriate provincial safety manager. Incidents reported to Technical Safety BC over the past three years are provided below:

Year	Incident Data
2017	Incidents - All Technologies except Rail (.CSV) Incidents - Rail only (.CSV)
2016	Incidents - All Technologies (.PDF)

Incident Investigations

Technical Safety BC investigates many of the incidents reported to us to learn of safety hazards in BC and what actions can be taken to manage those hazards. Technical Safety BC focuses its investigation effort on incidents where there is sufficient evidence to illustrate learning opportunities. In 2017, we completed a total of 68 incident investigations, compared to 48 in 2016. The results of these investigations are documented in our enhanced incident investigation summary report and organized by technology. We share the results of our incident investigations on our website, through our technical newsletters, and on social media to improve learning and engagement opportunities with the public and regulated workers. ([Learn more](#) about when we investigate an incident.)

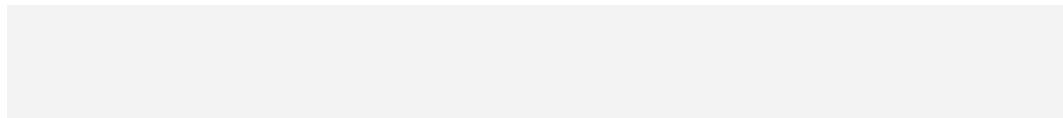
INCIDENT SUMMARY REPORTS

[Floor receptacle corrodes and causes arcing in grocery store](#)

[House explosion due to damaged gas line](#)

[Malfunctioning safety sensor causes emergency brakes to abruptly stop a gondola](#)

[View All Incidents >](#)



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



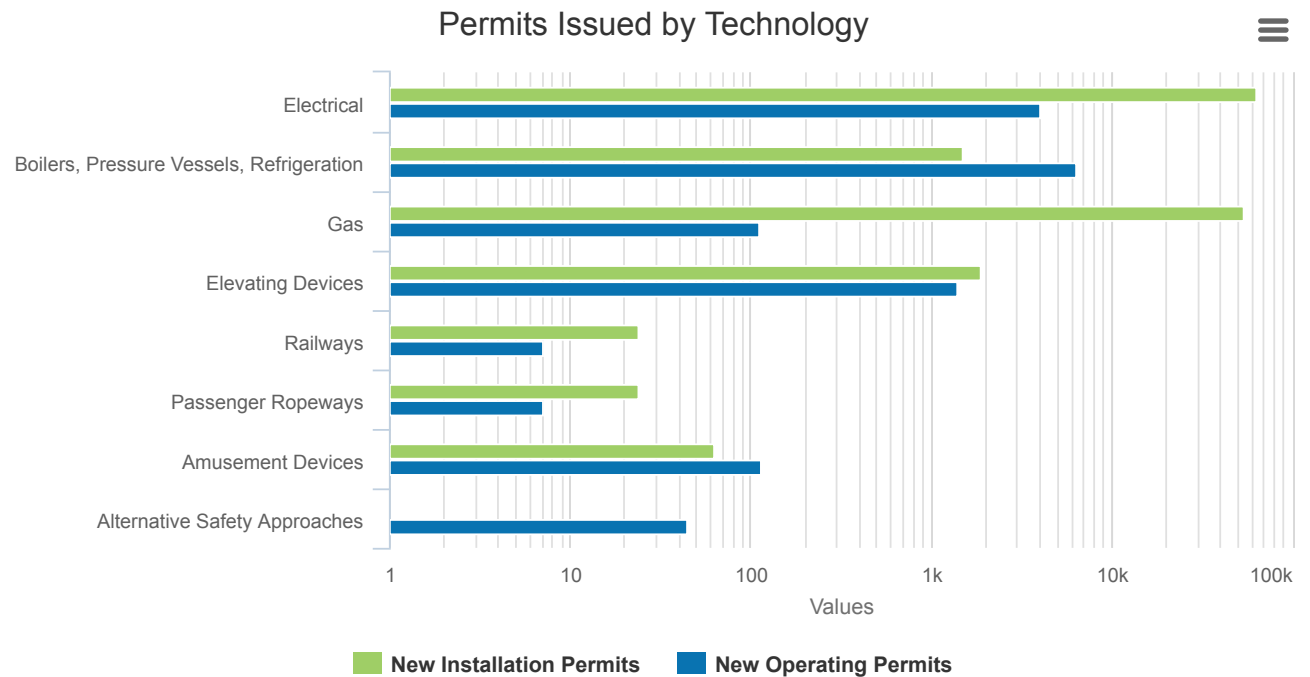
[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Scope of Regulated Work](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Scope of Regulated Work

The volume of installation and operating permits issued and the number of management plans provide an indication of the amount of regulated work being conducted within the safety system.

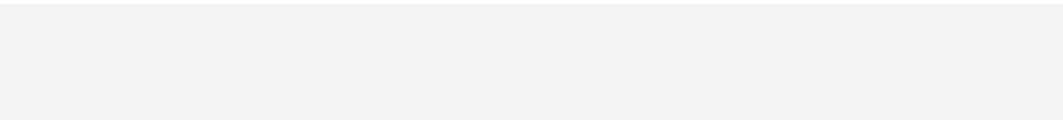
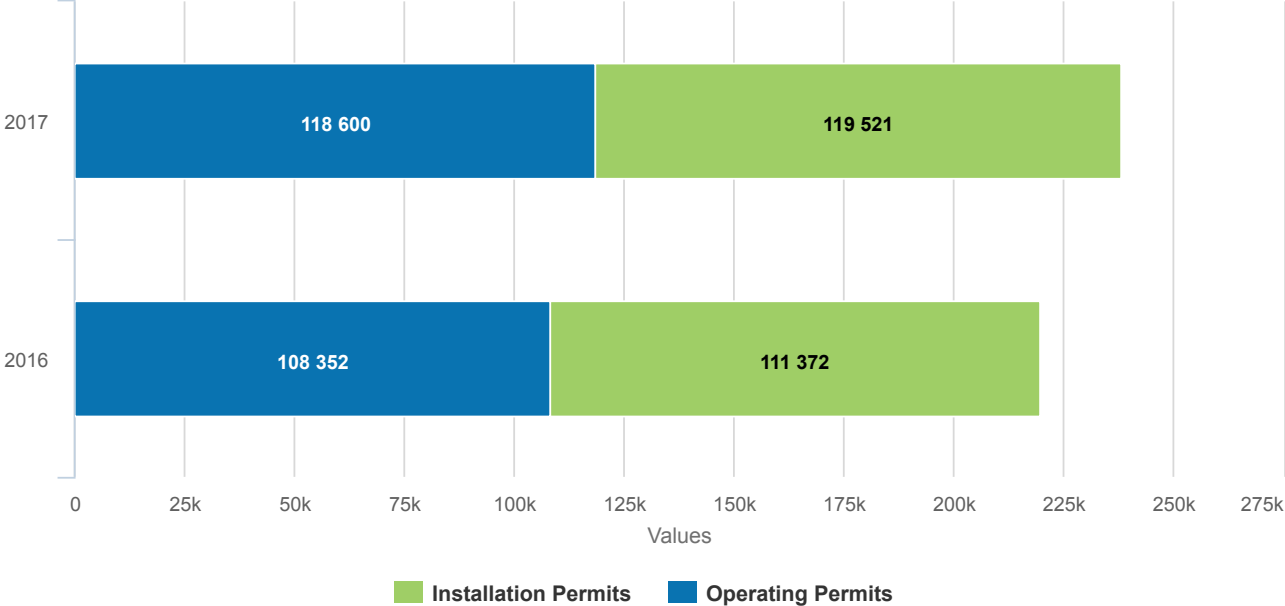


Note: Alternative Safety Approaches (ASAs) are not operating permits, but have similar characteristics. In 2017, there were 11 Safety Management Plans and 33 Equivalent Standard Approaches. See the [ASA section](#) for details.

Permits

Permits are the prime way to connect with the safety system. The total number of installation permits and operating permits grew once again in 2017. This can largely be attributed to the continued boom in housing construction in the Lower Mainland. As well, we introduced new service offerings through our enhanced online services which help our clients transact more easily, including from mobile devices. We attribute some of the increase in permits to the roll out of these enhanced online services and its associated awareness campaign.

Permits



Technology

ENERGY

- Boiler, PV, Refrigeration
- Electrical
- Gas

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [Current page](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Assessment of Regulated Work

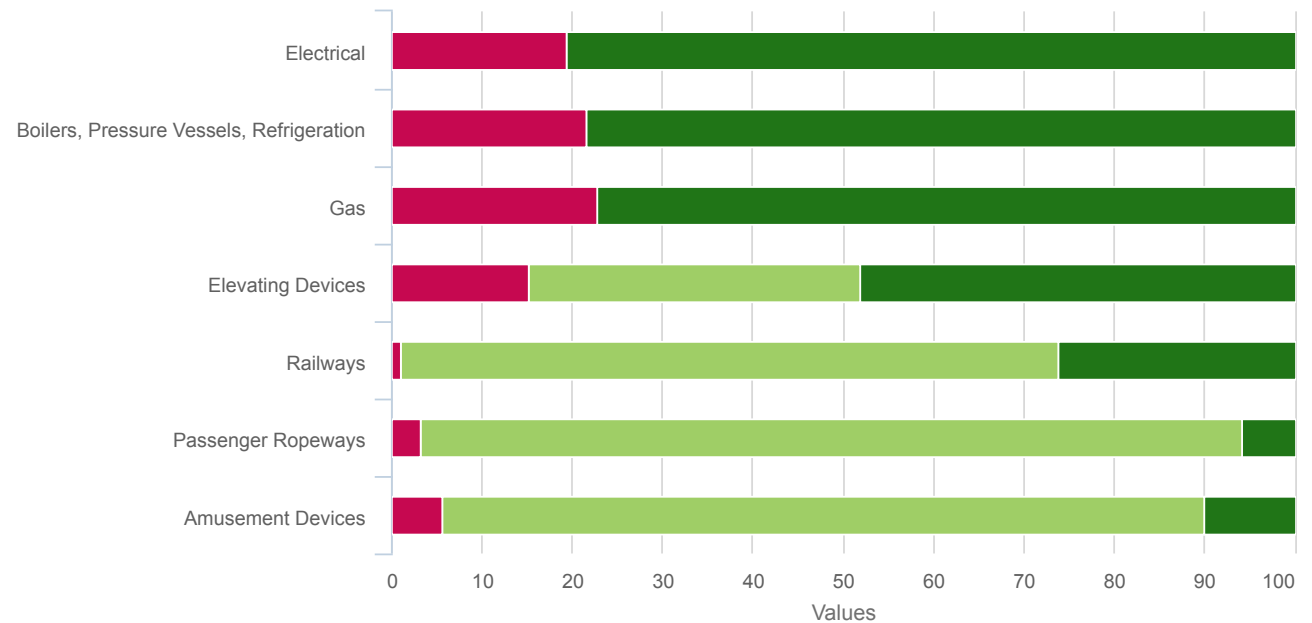
Safety officers conduct assessments on a daily basis. Findings are presented below.

[COMPLIANCE ASSESSMENTS](#)

[HAZARD ASSESSMENTS](#)

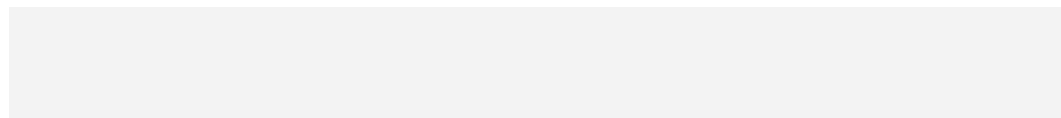
Compliance Findings

Compliance of Duty Holders' Work 2017



The chart above compares the compliance outcomes of physical assessments relative to the total physical assessments in each regulated industry sector. The values have been normalized as a percentage of the overall assessment volumes to accommodate the differences between assessment volumes in each industry sector. Compliance outcomes are Pass, Conditional Pass, or Fail, as defined in our [Glossary](#) (see "Assessment").

The specific quantities of the assessments, along with assessment outcomes as a percentage of total assessments completed in each sector, can be seen by hovering over the chart above.



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Stakeholder Engagement](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Stakeholder Engagement

The Stakeholder Engagement team is dedicated to building better connections between our stakeholders and Technical Safety BC through work with committees, advisory bodies, and hosting issue-specific consultations.

Technology Advisory Committees

In 2017, each of the four Technology Advisory Committees met three times to discuss and make recommendations on various issues. These issues included trip and fall hazards in single speed elevators, the 2018 Canadian Electrical Code, and the development of the photovoltaic working group.

Safety Standards Administrators' Group

Technical Safety BC and local governments who administer parts of the *Safety Standards Act* work together to build better communication through the Safety Standards Administrators' Group. In 2017, the Safety Standards Administrators' Group held six meetings with the goal of sharing information and working together

to align regulatory matters such as unclear jurisdiction issues, the 2018 Canadian Electrical Code, and electric vehicles charging management systems.

Advisory Panels

Opinions and feedback gathered from various Advisory Panels help shape the decision making process on topics needing formal panel discussions. In 2017, Technical Safety BC formed three Advisory Panels and each panel held numerous meetings:

- The Advisory Panel of Stakeholders met once in 2017 to discuss the vision for the future of the construction industry and the technologies regulated by Technical Safety BC.
- The Internationally Trained Workers Program Advisory Panel helped Technical Safety BC develop a tool to assess the credentials of internationally-trained workers.
- The Elevating Devices [CSA B44 Code Adoption Advisory Panel](#) provided feedback on the implications and impacts of adopting the new Canadian Standards Association code, and identified BC-specific amendments. The two Elevating Devices advisory panels helped shape the proposals for formal consultation on the elevating devices code adoption.
- The Elevating Devices Maintenance Control Programs Advisory Panel considered the impact of the introduction of a new requirement on elevating devices maintenance contractors, building owners, and managers.

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



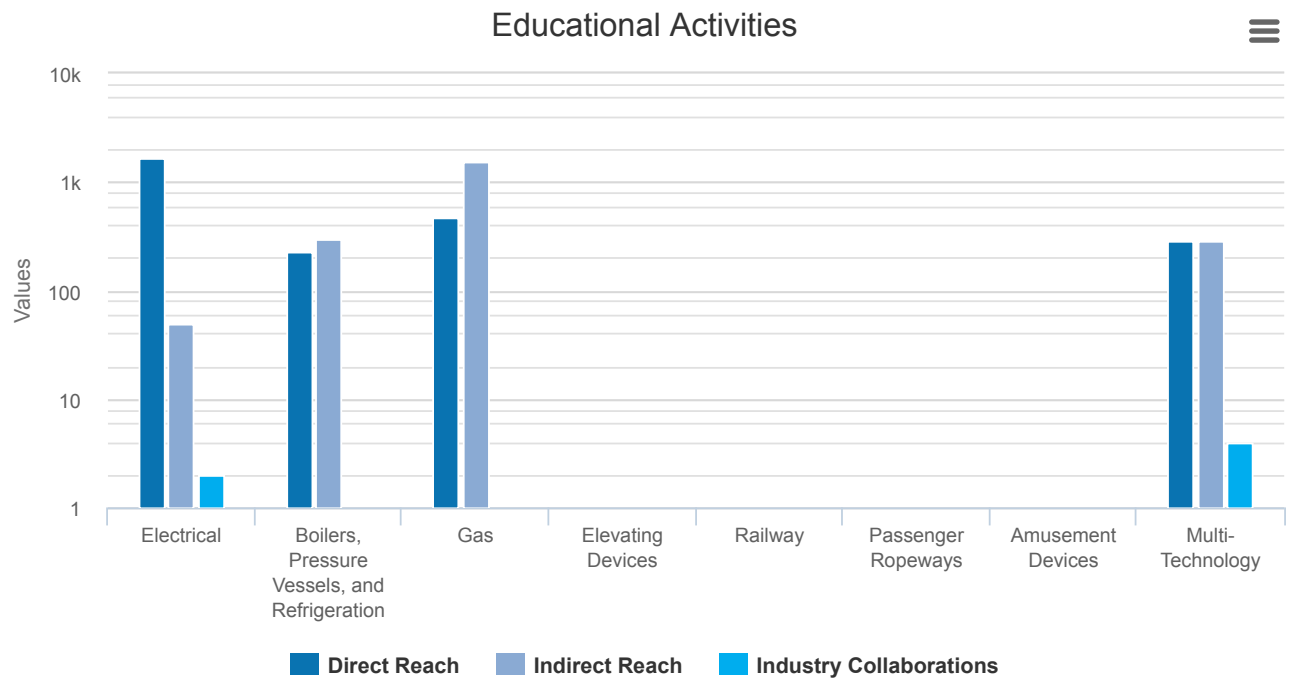
[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Client Education](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Client Education

Technical Safety BC is committed to bringing clients and stakeholders into processes that build and refine the safety system and designs our stakeholder engagement programs to accomplish this goal. In 2017 we participated in the following activities:



Note: Direct Reach refers to Tech Talks, Wake Up and Learns and webinars. Indirect Reach refers to conferences, forums, open houses and tradeshow.

Client Education Highlights

- 2,524 individuals took courses in our [Online Learning Centre](#).
- 120 live events were hosted in 2017, with attendance of 2,631 participants. This represents an 11% increase in the number of events over 2016.
- Our live events had a 93% satisfaction rating.
- 77% of participants said they are more confident about taking out a permit after attending "A Great Start" training.

To find out more information on our Client Education events, please visit the [Learning](#) section of our website.



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

[Learning centre](#)

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [Current page](#)

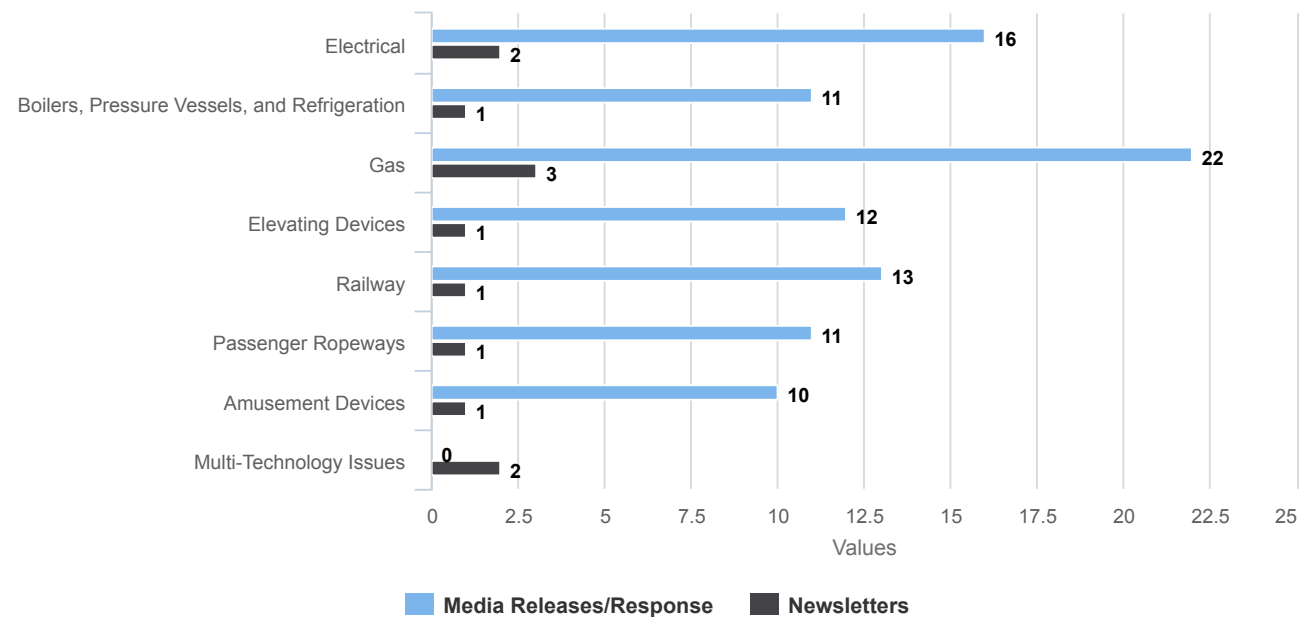
STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Media Relations and Communications

Media Relations

Technical Safety BC handles media requests and issues proactive media releases to warn of specific hazards, advise the public of steps they can take to reduce their risk of injury, and provide comment and context to safety issues that are of interest to the media. In 2017, Technical Safety BC responded to media inquiries and managed media relations in all eight industry sectors as follows:

Media Release and Response Activity in 2017



View full [details of our media relations activities](#) undertaken in 2017.

Other Activities

We shared safety information through 95 media releases, statements or interviews; 12 [technical newsletters](#) to 26,080 subscribers; and expanded our social media presence by launching a new [Facebook](#) page while currently exploring Instagram. On [Twitter](#), we gained 379 new followers – an increase of 60.7% over the previous year. We also increased the number of engagements by 44.6% and impressions by 15.9%. Despite launching Facebook late in the year, we ended the year with 260 followers. [LinkedIn](#) continues to be a well-received forum for career information with 5,183 followers.

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)

[Contact us](#)


[Sign up for newsletter](#)

[Have you witnessed an incident or hazard that involves regulated work or a regulated product?](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

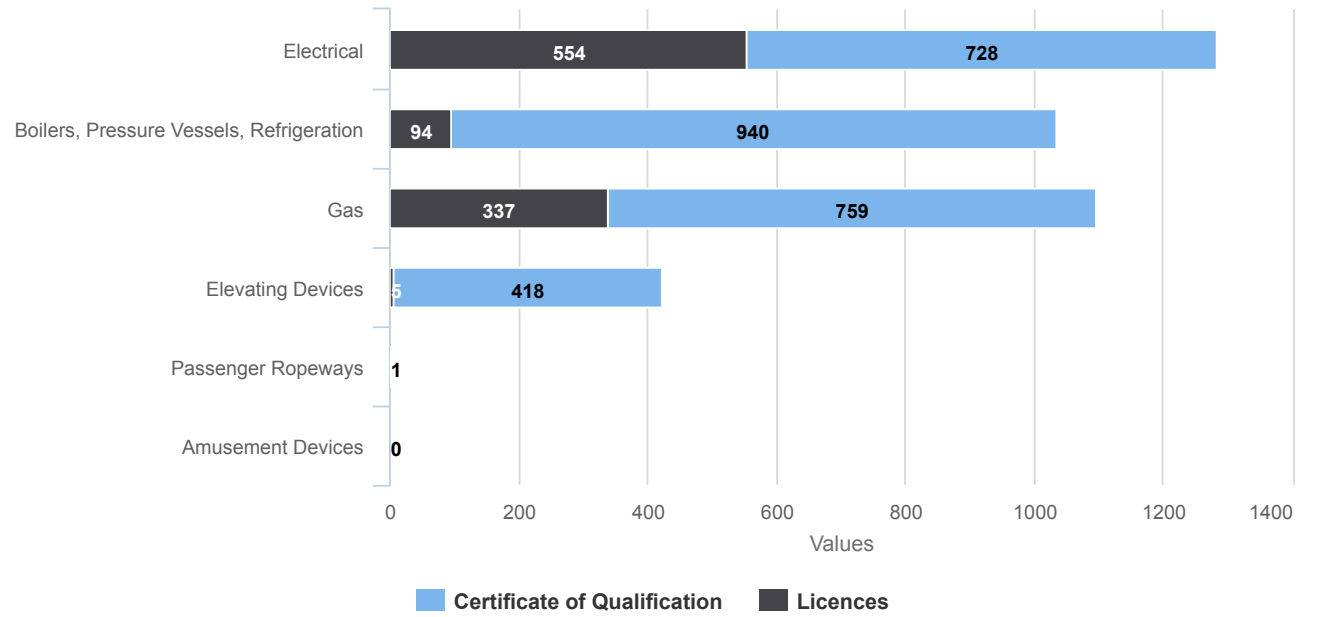
[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Licensing and Certification](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

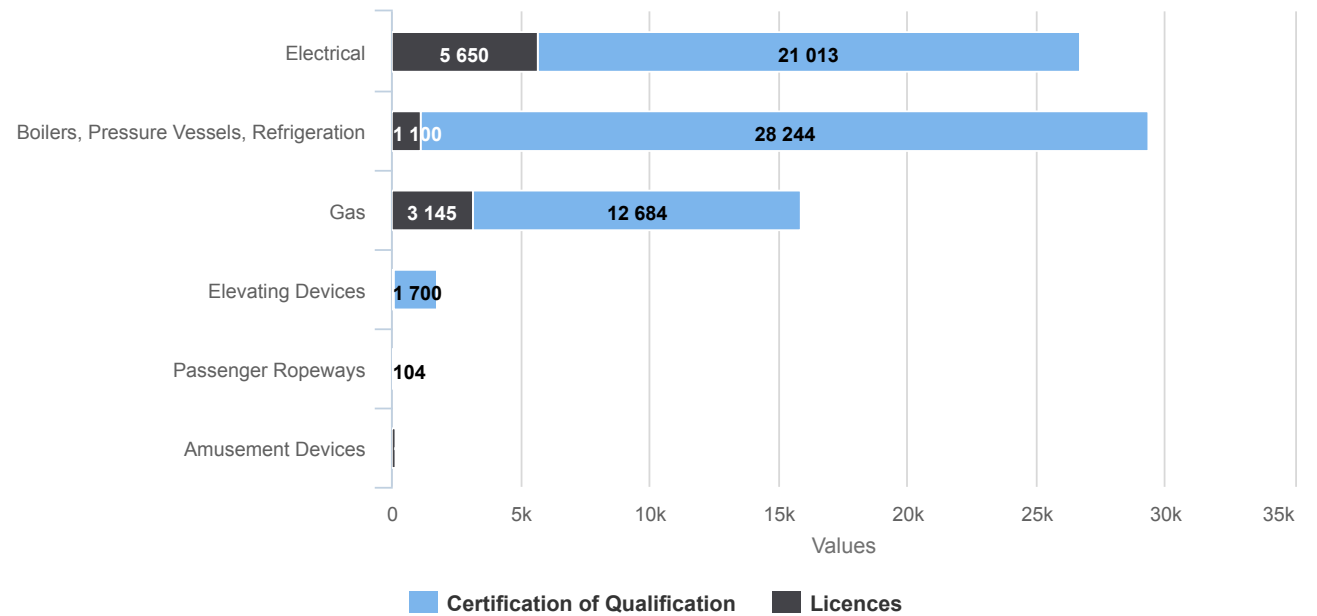
State of Safety 2017 - Licensing and Certification

Technical Safety BC issues licences to businesses that perform regulated work and certificates of qualification to individuals who demonstrate a required level of knowledge and experience. Licensing and certification assures that minimum standards of knowledge and proficiency are maintained regarding the completion of regulated work.

New Licences and Certificates of Qualification in 2017



Total Active Licences and Certificates



Highcharts.com

Note: Railways and Alternative Safety Approaches are not listed above because the *Railway Safety Act* and Alternative Safety Approaches Regulation do not define the use of licenses or certificates of qualification.

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

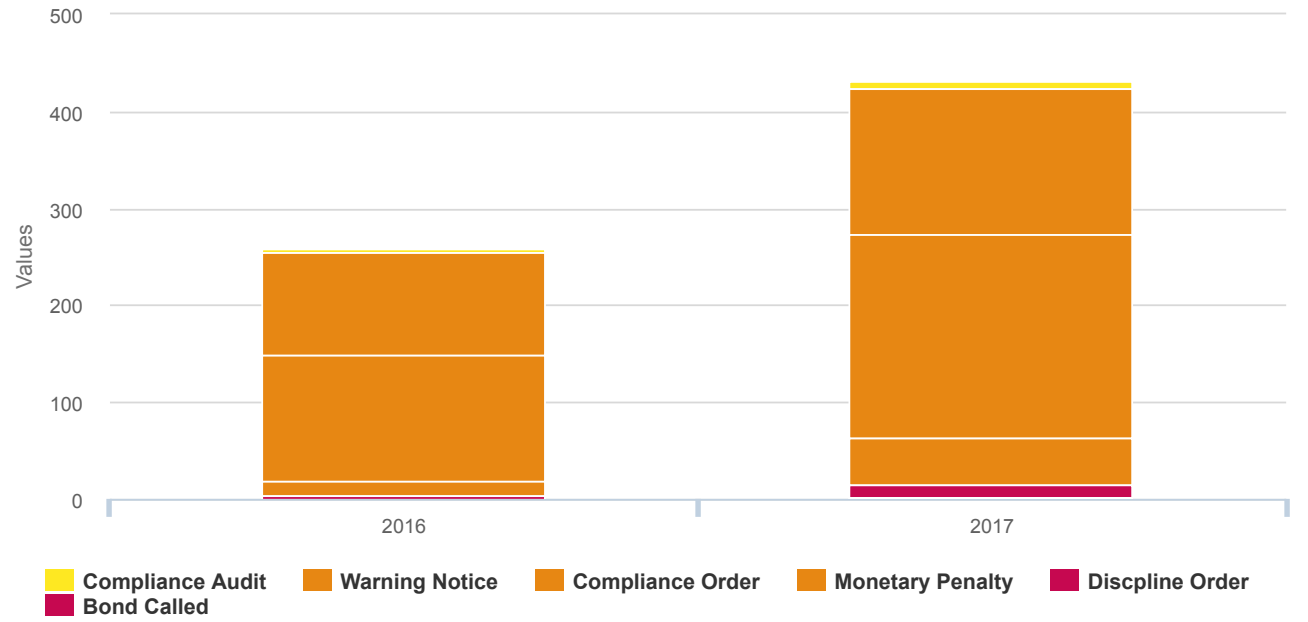
[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Compliance & Enforcement](#)

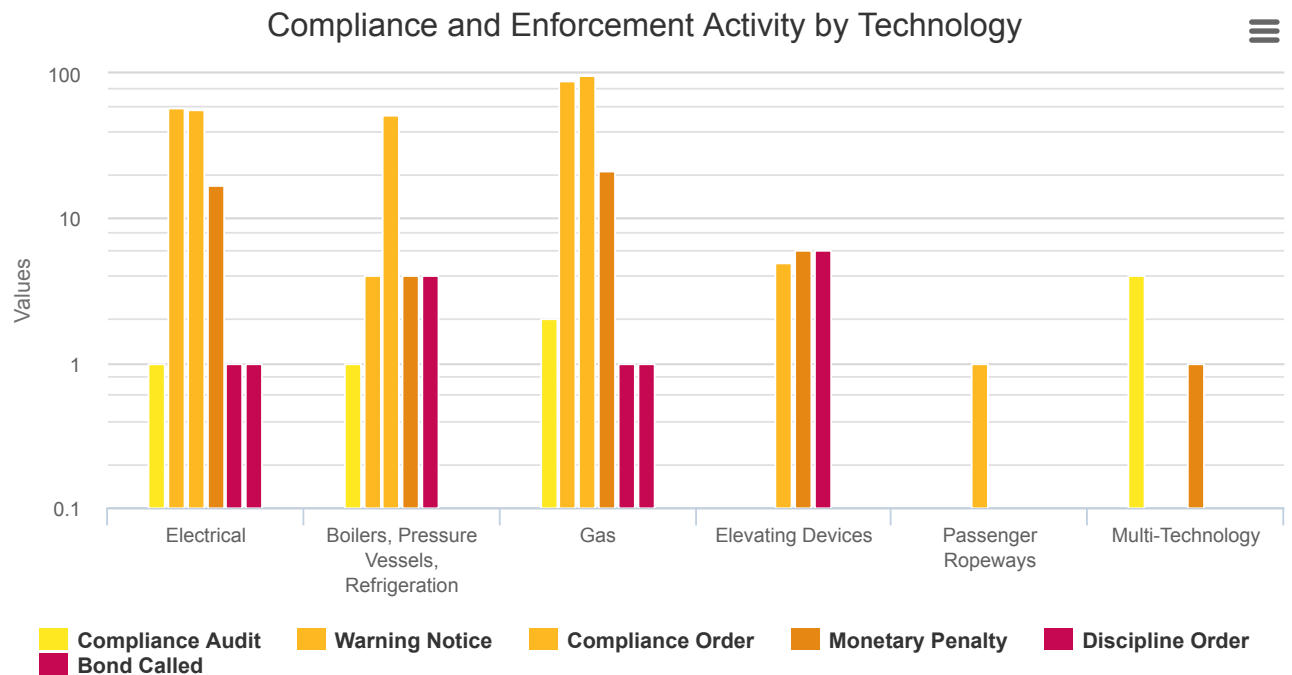
STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Compliance & Enforcement

Technical Safety BC compels compliance with the *Safety Standards Act* where individuals have resisted attempts to make their work or equipment compliant. Safety officers and safety managers have a variety of tools at their disposal. The use of these tools in 2017 is outlined below.

Compliance and Enforcement Activity By Type



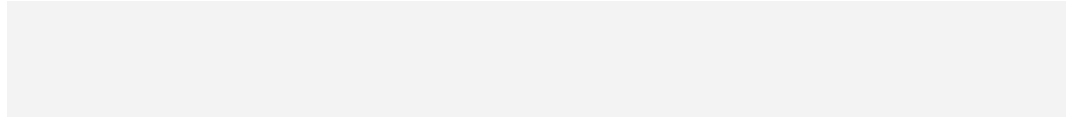


Compliance and Enforcement Highlights in 2017

- The Compliance and Enforcement team continued to focus efforts on increasing duty holder participation, connection, and better behavior within the province's safety system.
- We added six new members to our team allowing us to increase our compliance and enforcement activity over 2016.
- The main focus of the program continues to be identifying duty holders operating outside of the safety system without a license or permits. In 2017, this included identifying and making compliant 4,011 instances of undervalued work or worked performed without a permit.
- One of the most effective methods of understanding duty holder behavior is through the performance of compliance audits. A compliance audit provides in-depth knowledge of how a contractor operates, and offers insight as to how and why they are non-compliant with the law. This also allows the program to develop better processes for identifying gaps in the system, and allows for the systemic closing of them. Auditing efforts to-date have identified on average 210 instances of non-compliances per audit.

- Technical Safety BC's Compliance and Enforcement team is continuing its work to statistically understand how its efforts influence safety behaviour. By doing this, we can best apply resources in the most effective ways, and through the use of education and awareness, we will continue to deliver consistent, fair, and appropriate enforcement when required.

To view full details of our Compliance & Enforcement activities in 2017, please see our [Compliance & Enforcement Report](#).



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

News

News

Events

Engagement

Connect with us

Governance and leadership

Careers


Contact us

Sign up for newsletter

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

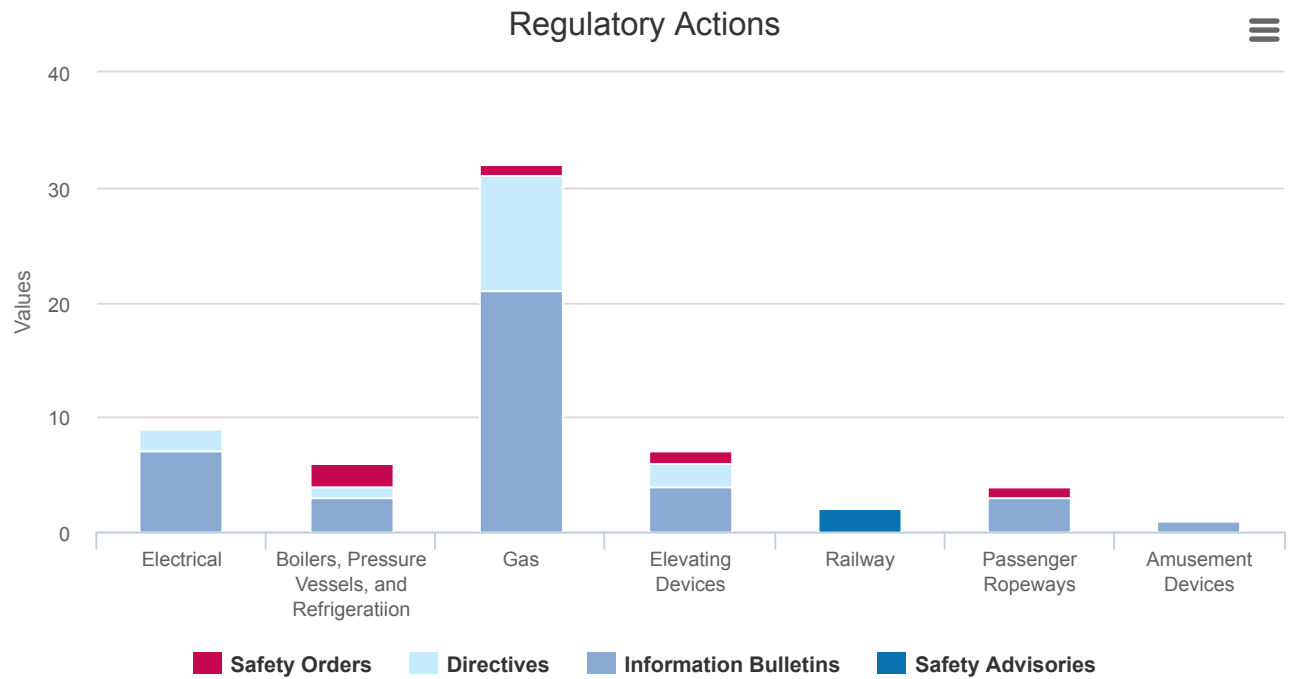
[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [Current page](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Regulatory Instruments and Amendments

Regulatory Instruments

Technical Safety BC uses regulatory instruments to assist with the administration of the *Safety Standards Act* and the *Railway Safety Act*. Safety orders are issued to prevent or reduce the risk of personal injury or damage to property. Directives are instruments that clarify or provide an interpretation of a regulation or code. Information bulletins provide helpful information and clarification on existing regulations or codes.



In 2017 Technical Safety BC issued a total of 61 Safety Orders, Directives, and Information Bulletins. The higher quantities in Electrical and Gas reflect that those technologies make up a larger part of our business.

Amendments

In 2017 Technical Safety BC proposed the following regulatory amendments to the Provincial Government:

Regulation	Description
Electrical Safety Regulation	<p>Electrical safety refinements:</p> <ol style="list-style-type: none"> 1. Extra low voltage permitting changes – eliminate permit requirement for specified low risk security alarm work (component removal and replacement).

	<p>2. Combustible dust (i.e., wood dust) safety order contents moved into regulation – for clarity and certainty.</p>
<p>Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation</p>	<p>Power engineering enhancements:</p> <ol style="list-style-type: none"> 1. Certification: power engineer renewals – expiry dates to certificates of qualification. 2. Plant registration – require plant operating permits for 5th class and above boiler plants, which would link individual units into their larger configuration as a plant. 3. Internationally Trained Worker Power Engineers - enable the recognition of power engineering qualifications acquired abroad.
<p>Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation</p>	<p>Boiler code analysis and pressure welding enhancements:</p> <ol style="list-style-type: none"> 1. Housekeeping changes to ensure internal consistency of regulation. 2. Pressure Welder Program Redesign – new regulatory framework needed to provide for redesigned welder requirements by the Industry Training Authority.
<p>Elevating Devices Safety Regulation</p>	<p>Elevating device code package 2017:</p> <ol style="list-style-type: none"> 1. Adoption of 2016 edition of Canadian Standards Association/American Society of Mechanical Engineers A17.1/B44 Safety Code for elevators and escalators.

2. Maintenance control program – this requirement may or may not be adopted in BC.
3. Clarifying roles and responsibilities of elevating device mechanics/mechanics-in-training based on lessons learned.

Railway Safety Act

Amendment giving Technical Safety BC the authority to conduct railway incident investigations

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Roneways

Passenger ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

HIDE ALERTS



[Products](#) [About](#) [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Management Discussion](#)
> [State of Safety 2017 - Associations-National Codes](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Associations-National Codes

The following is a listing of all industry associations and national codes and standards committees in which Technical Safety BC participated during 2017.

Technology	Associations / National Codes + Standards Committees
Amusement Devices	<ul style="list-style-type: none">• ASTM F24 – Standards Development for Amusement Rides/Devices (F2783 Standard Practice for Canada Co-Chair)
Boilers, Pressure Vessels, and Refrigeration	<ul style="list-style-type: none">• International Pressure Equipment Integrity Association (IPEIA)• Association of Chief Inspectors Technical Committee (ACI TC)

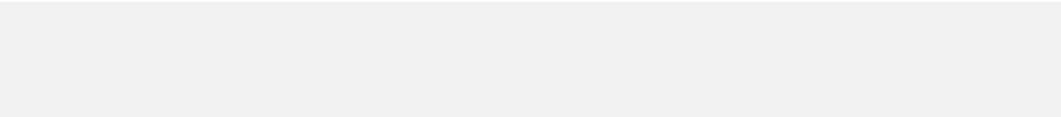
- Association of Chief Inspectors annual meeting (ACI Chair)
- CSA B51 Code Technical Committee
- CSA B52 Code Technical Committee
- ASME Conference committee
- National Board of Boiler and Pressure Vessel Inspectors
- Standardization of Power Engineers Examination Committee (SOPEEC)

Electrical

- Canadian Advisory Council on Electrical Safety - (CACES)
- CACES Subcommittee on the SPE-1000
- Regulators Forum
- Canadian Electrical Code, Part I (Inside Wiring Rules) - TC
- CE Code, Part I Regulatory Authority Committee - RAC
- CSA Part I, Section 38 Subcommittee, Elevators, Dumbwaiters, Material Lifts, Escalators, Moving Walks, Lifts for Persons with Physical Disabilities, and similar Equipment - TSC
- CSA Part I, Section 58 Subcommittee, Passenger Ropeways and Similar Equipment - TSC
- CSA Part I, Section 66 Subcommittee, Amusement Parks, Midways, Carnivals, Film and TV Sets, TV Remote Broadcasting Locations, and Travelling Shows - TSC
- CSA Part I, Section 70 Subcommittee, Electrical Requirements for Factory Built Relocatable Structures & Non-Relocatable Structures - TSC
- CSA Part I, Section 72 Subcommittee, Mobile Home and Recreational Vehicle Parks - TSC
- CSA Part I, Section 74 Subcommittee, Airport Installations - TSC

	<ul style="list-style-type: none"> • CSA Part I, Section 78 Subcommittee, Marine Wharves, Docking Facilities, Fixed and Floating Piers, and Boathouses - TSC • ULC Advisory Council • UL Standards Technical Panel 2200, Stationary Engine Generator Assemblies • UL 2577 Ed. 1 - Suspended Ceiling Grid Low Voltage Systems and Equipment • UL 1088 Ed. 7 (Proposed) - Proposed Edition - UL 1088 Ed. 7 • TC1088, addressing Temporary Lighting Strings (UL 1088/ULC 1088) • International Association of Electrical Inspectors (IAEI) • BC Electrical Association (Member, Board of Directors)
Elevating Devices	<ul style="list-style-type: none"> • CSA Elevator Safety Codes Committee • Association of Provincial Chief Elevator Inspectors • APEGBC Building Codes Committee • ASME A17 Escalator and Moving Walk Committee • Engineers and Geo Scientists of BC, Elevating Devices Sub Committee
Gas	<ul style="list-style-type: none"> • CSA B149.1 Code Committee, Natural gas and propane installation code • CSA B149.2 Code Committee, Propane storage and handling code • CSA B149.3 Code Committee, Code for the field approval of fuel-related components on appliances and equipment • CSA B149.5 Code Committee. Installation code for propane fuel systems and containers on motor vehicles • CSA B149.6 Code Committee, Code for digester gas, landfill gas, and biogas generation and utilization

	<ul style="list-style-type: none"> • CSA B108 Code Committee, Compressed natural gas fueling stations and installation • CSA B109 Code Committee, Natural gas for vehicles installation code • Interprovincial Gas Advisory Council • SMC to ISO/TC 291, Domestic Cooking Appliances • NGV Gas Transportation • Fuels and Appliances, SSC • ULC Advisory Council
Passenger Ropeways	<ul style="list-style-type: none"> • CSA, Z98 Passenger Ropeways and Passenger Conveyors Committee
Railways	<ul style="list-style-type: none"> • Advisory Council on Railway Safety (Canada - National Provincial Representative) • Federal / Provincial Working Group on Railway Safety (Canada) • Operation Lifesaver Western Canada
General	<ul style="list-style-type: none"> • BC Common Ground Alliance (Board of Directors) • Cross-Government Compliance and Enforcement Collaborative



ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

HIDE ALERTS ×



Products ▾ About ▾ Careers



My Accounts

Home > State of Safety 2017 > Current page

**STATE OF SAFETY 2017
MENU**

- About the State of Safety
- Management Discussion
- Understanding Safety Risk +
- Managing Safety Risk +
- Data by Technology +
- Safety Stories
- Multi-year Incident Case Studies
- Download Report

State of Safety 2017: Alternative Safety Approaches

SAFETY MANAGER'S DISCUSSION

DATA

Safety Manager's Discussion

Alternative Safety Approaches (ASAs) continue to be developed with owners and operators in the oil and gas, propane, bio-energy, LNG, and institutional sectors.

Technical Safety BC's ASA Safety Program is responsible for overseeing the acceptance of ASAs for all disciplines under the *Safety Standards Act* in accordance with the Act and the Alternative Safety Approaches Regulation.

The 44 ASAs in place as of the end of 2017 request alternatives within the following four major areas of regulation:

- Safety Standards General Regulation

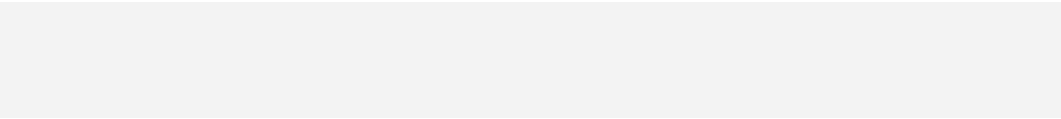
- Power Engineers, Boilers, Pressure Vessel and Refrigeration Safety Regulations
- Electrical Safety Regulations
- Gas Safety Regulations

The audit process used by Technical Safety BC assesses how the procedures and processes identified in the ASA meet or exceed the objectives of the *Safety Standards Act*, to minimize risks, hazardous installation or operation. From 2015 to 2017 Technical Safety BC performed 50 audits of sites operating with an accepted ASA. The audits identified 475 non-conformances, 84 considered moderate, major, or severe. There were no severe non-conformances recognized in 2017. The majority of non-conformances in 2017 pertained to the failure to correct previously identified non-conformances and to develop effective processes and procedures.

The ASA program continues to improve. In 2018 we will revise guidance documents and improve the hazard, risk assessment programs, and audit processes.

Donna Denny

Safety Manager, ASA and Programs Manager, Safety Oversight



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 






[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Amusement Devices](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	
Managing Safety Risk	
Data by Technology	
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Amusement Devices

[SAFETY MANAGER'S DISCUSSION](#) [DATA](#)

Safety Manager's Discussion

We experienced a 7.5% increase in the number of [new devices](#) and continue to see new and unique products being introduced. In 2017, Technical Safety BC approved and inspected the Dining in the Sky elevated restaurant – a platform carrying diners raised by crane to a height of 40 meters. The device went through the entire approval process from design registration through to final acceptance inspection over a six-month period.

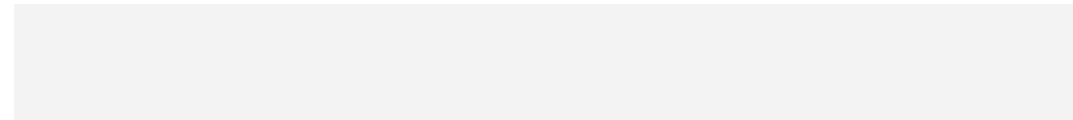
The number of [incidents](#) involving amusement devices remained steady in 2017. We continue to remind contractors of the importance of submitting incident data promptly so we can learn from these occurrences and identify strategies to mitigate them.

A focus on unpermitted devices continues to be an ongoing effort in this sector. We continue our efforts to educate those operating outside of the safety system on the importance of obtaining necessary licences and permits so that we can work together to prevent incidents.

Looking ahead to 2018, we continue to consider potential adoption of the new ASTM F2783 (Standard Practice for Design, Manufacture, Operation, Maintenance, and Inspection of Amusement Rides and Devices, in Canada).

Nav Chahal

Acting Elevating Devices, Passenger Ropeways and Amusement Devices Safety Manager



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

News

Events

Engagement

Connect with us

Governance and leadership

Careers


Contact us

Sign up for newsletter

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#) ▾ [About](#) ▾ [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [Current page](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017: Boiler, Pressure Vessels and Refrigeration

[SAFETY MANAGER'S DISCUSSION](#) [DATA](#)

Safety Manager's Discussion

It was a very active year and a number of changes to the [Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation](#) (PEBVPSR) took effect in 2017. These included the introduction of a renewal requirement for those holding Certificates of Qualification issued under the Regulation.

The Province has forecasted a shortage of power engineers which will impact industries that rely on power engineers for the safe operation of equipment. The newly launched Internationally Trained Worker Program will address this issue as

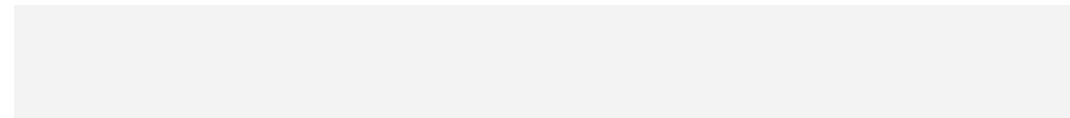
we will be able to assess and recognize the qualifications of specific classes of power engineers from outside of Canada.

A new requirement for owners of boiler plants to register for an operating permit for the [configuration of their plant](#) was also implemented in 2017. By understanding technical systems as a whole, Technical Safety BC can better assess areas of risk and provide clarification on plant classification and staffing requirements to owners, users, and individuals who are in charge of plant operations.

In October 2017, an ammonia release at a public arena in Fernie resulted in three fatalities. Technical Safety BC worked closely with the fire department, RCMP, Coroner's Office, and WorkSafe BC on the subsequent investigation. While the investigations are still underway, we continue to work with industry to provide knowledge, education, oversight and regulatory support to help prevent ammonia related incidents. Two [safety orders](#) were issued towards the end of the year and our work on ammonia safety will continue into 2018.

Tony Scholl

Boilers, Pressure Vessels, and Refrigeration Safety Manager



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017: Electrical](#)

**STATE OF SAFETY 2017
MENU**

About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017: Electrical

[SAFETY MANAGER DISCUSSION](#)

[DATA](#)

Safety Manager's Discussion

The development of a [Field Safety Representative \(FSR\) renewal process](#) was a key area of focus in 2017. This program, which required extensive planning and stakeholder consultation in 2017, is now up and running. We believe the program will improve the connection between FSRs and Technical Safety BC, and provide mechanisms to ensure these individuals are staying current in their knowledge of the Code, Act, and Regulations.

In 2017, our physical assessment activities revealed a high number of instances where energized equipment was left exposed to contact. The development of risk treatment plans is underway and this will remain an area of focus for 2018. We also continue to identify moderate to severe hazards related to grounding and bonding, and service equipment. Continued monitoring and education will be key to reducing these hazards.

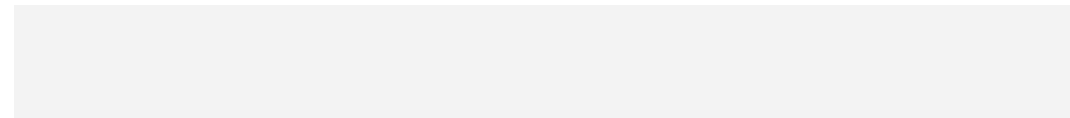
The risk of [combustible dust](#) explosion due to wood dust remains of continued attention. In 2017, the requirements from the safety orders we issued in 2012 and 2013 were brought into regulation. This reflects how the learnings from hazards and incidents strengthen prevention within our safety system. We are pleased to report assessments of wood processing facilities completed in 2017 continue to find improved safety.

We have also implemented a [data sharing agreement with BC Hydro](#) which allows both organizations to improve their ability to verify that electrical work has been completed by licensed contractors in accordance with safety regulations *before* proceeding with the service connections. This means that Technical Safety BC will be able to increase its ability to identify cases where safety may be compromised at a site, and take the appropriate actions to prevent unsafe conditions.

In the year ahead, we will be focused on adoption of the [2018 Canadian Electrical Code](#). This review is anticipated to take most of 2018 and will include extensive public consultation. Work is currently underway on an impact assessment.

Ulrich Janisch

Electrical Safety Manager



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

HIDE ALERTS



[Products](#) [About](#) [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Elevating Devices](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	
Managing Safety Risk	
Data by Technology	
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Elevating Devices

[SAFETY MANAGER'S DISCUSSION](#)

[DATA](#)

Safety Manager's Discussion

Many initiatives were undertaken in 2017 to promote the safe use and maintenance of elevating devices. One of the key areas of focus was periodic and annual testing of elevating devices and reporting by contractors. Our team conducted compliance audits to confirm if contractors were performing maintenance and the required tests at the legislated intervals.

Following these audits, three major [enforcement actions](#) were issued to contractors. Two contractors failed to meet safety order requirements regarding annual brake maintenance and one failed to meet safety order requirements regarding annual brake maintenance and directive requirements in regards to periodic testing. Through these enforcement activities, we were able to influence

industry and achieve noticeable changes in contractor behavior and their approach to regulatory compliance.

As part of our ongoing efforts to reduce and manage risk, we also undertook an initiative to address aging non-compliances which resulted in a 64% decrease in the total number. The elevating device contractors played a major role in achieving this and the results show that asset owners, contractors, and regulators can achieve great results when working together as partners in safety.

Elevating Devices Mechanics are required to renew their Certificates of Qualification every three years, and 2017 was the first renewal cycle. We established an Elevating Devices Mechanic Certification Working Group and continue to optimize our procedures within the current regulatory framework. In 2018, we will develop learning opportunities to help support mechanics with the code revision, and continue oversight of certified individuals.

There were no major elevating incidents in 2017 that resulted in personal injury. However, we saw two incidents on escalators related to lack of maintenance and improper adjustments to escalator brakes. We are in the process of developing a mitigation strategy to address this emerging risk.

2017 also saw compliance being achieved for the [Single Bottom Cylinder safety order](#) that was issued in 2010. The order spanned over seven years and required 682 cylinders to be replaced and inspected; all identified hydraulic cylinders are now compliant to the requirements of the order.

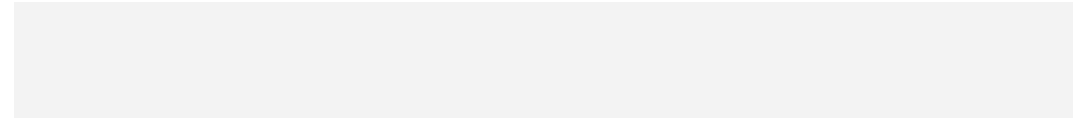
Adoption of the 2016 edition of the CSA B44 Safety Code for Elevators and Escalators into the Elevating Devices Safety Regulation was a key priority in 2017. We completed public consultation to review the new Code which includes the introduction of Maintenance Control Plans (MCPs). Registration of MCPs will allow Technical Safety BC to collect and share robust data with contractors and asset owners. The Request For Amendment has been submitted to the provincial government for their consideration.

In 2018, we will continue to work closely with the elevating devices industry to successfully implement the 2016 edition of the Safety Code for Elevators and

Escalators and the introduction of MCPs. We will continue to connect with certified individuals and provide learning opportunities for them. There will also be a focus on increasing our [online services](#) offerings so that clients can take a more direct approach in the oversight of their equipment. 2018 will also see a continued focus on regulatory compliance audits to ensure that elevating devices are installed, altered, and maintained in accordance with the code and regulatory requirements.

Nav Chahal

Safety Manager, Elevating, Amusements, and Ropeways



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Gas](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Gas

[SAFETY MANAGER'S DISCUSSION](#) [DATA](#)

Safety Manager's Discussion

Due to the expansion of inspection bodies into the industry sector, we reviewed gas-fired appliance certification and approval requirements last year. Following this review, we formalized process requirements into a directive for industry to provide a better understanding of appliance certification requirements where a nationally-recognized standard exists. We also clarified the application steps for gas appliance field approvals, where no related standards exist today. It's our hope that publication of these requirements will improve national consistency and promote alignment with the Standards Council of Canada certification agency accreditation guidelines for certification and inspection bodies operating in BC.

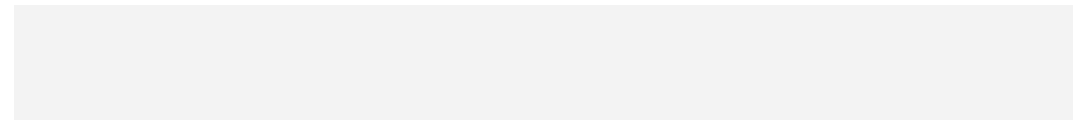
A 2017 national analysis of carbon monoxide related incidents identified aged gas appliance installations and their related service history as being key contributors to carbon monoxide risk. To provide guidance and lend support for gas service

contractors and industry training providers, we developed a “Carbon Monoxide Guidelines for the Service Industry” manual. To be released in 2018, the manual covers key factors related to the production of carbon monoxide by gas-fired appliances, their associated service concerns, building environment, and appliance standards.

Identifying training priorities for gas safety officers continues to be a priority. Regular training programs are now being developed for new and existing safety officers that will improve assessment consistency and data quality. Improved and ongoing safety officer training programs will further enhance Technical Safety BC’s ability to identify and predict emerging technical risks.

Brad Wyatt

Gas Safety Manager



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

[Elevating Devices](#)

[Passenger Ropeways](#)

[Railways](#)

Products

[Permits](#)

[Certification](#)

[Licences](#)

[Design registration](#)

[Assessments](#)

[Learning centre](#)

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](#) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Passenger Ropeways](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Passenger Ropeways

[SAFETY MANAGER'S DISCUSSION](#) [DATA](#)

Safety Manager's Discussion

In 2017, the number of passenger ropeway incidents decreased slightly. During the 2016/2017 operating season, two separate and serious incidents occurred which involved workers. These workers were performing maintenance on passenger conveyors and in both cases the workers were exposed to moving, rotating equipment while conducting maintenance tasks. One of these incidents resulted in a fatality.

As a result, we consulted with industry, manufacturers, and contractors to formulate a strategy to mitigate these types of incidents. A [safety order](#) was issued in June 2017 which outlined requirements around safety procedures, equipment access, inspection control, inspections, and guarding. This safety order applies to all new

and existing conveyors in the province. All existing conveyors in the province are required to meet the requirements of this safety order by October 15, 2018. We are also working with the CSA Z98 - Safety Standard for passenger ropeways and passenger conveyors on potential changes to the standard that would align to this safety order.

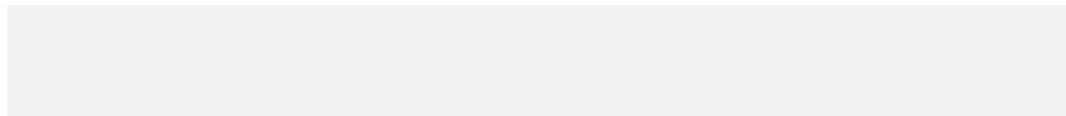
We also continue to monitor the issue of aging ropeways (such as above-surface lifts built prior to 1992). In 2016, we gathered data to understand the nature and magnitude of the risk and in 2017 we presented our findings to the Canada West Ski Areas Association (CWSAA). Based on the increased number of alteration requests, there does appear to be a movement towards older equipment being upgraded with newer components.

As part of our ongoing safety oversight, we perform auditing, assessment, and inspection of passenger ropeways and passenger conveyors. In 2017, we introduced pre-operation inspection declaration for contractors. This pre-operation inspection declaration is to ensure that passenger ropeway contractors are performing the required inspections and tests prior to the start the season. This declaration was completed on a voluntary basis in the 2017 operating season.

In 2018 we will be working with Selkirk College and CWSAA to update and revise the [Lift 151-153 ropeway mechanic courses](#). We also continue to play an active role in industry, attending the Spring and Fall CWSAA conferences and continuing to build strong relationships with the ski industry in Western Canada to promote practices that improve safety for workers and the public.

Nav Chahal

Elevating Devices, Passenger Ropeways and Amusement Devices Safety
Manager



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [State of Safety 2017](#) > [State of Safety 2017 - Railways](#)

STATE OF SAFETY 2017 MENU	
About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

State of Safety 2017 - Railways

[SAFETY MANAGER'S DISCUSSION](#)

[DATA](#)

Safety Manager's Discussion

In 2017, regulatory review was a key area of focus. We analyzed the railway regulatory framework and will be discussing recommendations for regulatory change with the Ministry of Transportation and Infrastructure. We also made changes to some of our internal processes around railway incident inspections to improve data collection.

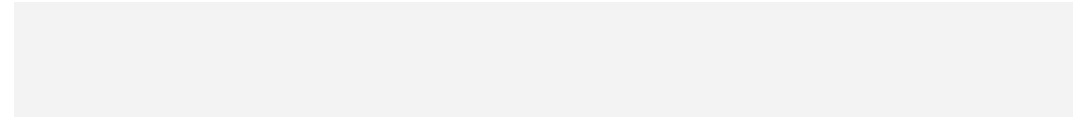
Continuing our education efforts, we developed a [Railway Safety Handbook](#) to support managers and employees of BC railways. This handbook provides general railway operational information, best practices, and details the consequences of unsafe acts and conditions that can impact the safety of railway employees, the public, and the environment.

In 2018, we are shifting towards a risk-based audit platform that may change the scope and frequency of our oversight. Ensuring appropriate training standards for

employees, track infrastructure, and maintenance are top priorities for the coming year. We will also be monitoring the growth of public transit systems in the province to ensure continued regulatory oversight of existing and new light rail transit. We will also begin providing clients with year-end report cards so they have a more complete and in-depth view of their safety performance.

Arne Vigen

Railways Safety Manager (Acting)



Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

 HIDE ALERTS 



Products 

About 

Careers



My Accounts

[Home](#) > [Safety Stories](#)

**STATE OF SAFETY 2017
MENU**

- [About the State of Safety](#)
- [Management Discussion](#)
- [Understanding Safety Risk](#) +
- [Managing Safety Risk](#) +
- [Data by Technology](#) +
- [Safety Stories](#)
- [Multi-year Incident Case Studies](#)
- [Download Report](#)

Safety Stories

19 May 2017

TECHNICAL SAFETY BC TAKES LEADING ROLE TO PREVENT CARBON MONOXIDE POISONING

Each year in BC, numerous carbon monoxide (CO) incidents are reported to the authorities. Some come via 911 from panicked homeowners who have been alerted by their CO detector sounding.

- HOMEOWNER
- CONTRACTOR
- ASSET OWNER
- GAS
- CARBON MONOXIDE
- SAFETY STORY

19 May 2017

TECHNICAL SAFETY BC-LED BOILER INVESTIGATION INFLUENCES GLOBAL STANDARDS

Have you ever waited a moment too long to light a barbecue and been surprised by the “whoosh” as built-up gas ignites? Safety professionals call this a “hard light-off” or delayed ignition and, if you are outside, the result is typically a yelp followed by jokes about singed eyebrows.

ASSET OWNER

BOILER, PV AND REFRIGERATION

GAS

SAFETY STORY

19 May 2016

ENFORCING COMPLIANCE WITH SAFETY REGULATIONS: A SHARED RESPONSIBILITY

It was like finding a ticking time bomb: a 240-volt electrical distribution panel with no safety cover under the back deck of a suburban home.

Anyone accessing the panel would need to stand in an inch of water that saturated the ground under the deck.

HOMEOWNER

GAS

ELECTRICAL

SAFETY STORY

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

News

Events

Engagement

Connect with us

Governance and leadership

Careers


Contact us

Sign up for newsletter

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

🔔 HIDE ALERTS ✕



[Products](#) ▾ [About](#) ▾ [Careers](#)



[My Accounts](#)

[Home](#) > [News & Events](#) > [Current page](#)

[Print \(PDF\)](#)

Technical Safety BC takes leading role to prevent carbon monoxide poisoning

19 May 2017

[HOMEOWNER](#) [CONTRACTOR](#) [ASSET OWNER](#) [GAS](#)

[CARBON MONOXIDE](#) [SAFETY STORY](#)

Each year in BC, numerous carbon monoxide (CO) incidents are reported to the authorities. Some come via 911 from panicked homeowners who have been alerted by their CO detector sounding. Others come from contractors, technicians and utility employees who have identified fuel-burning appliances such as furnaces, boilers, water heaters or fireplaces that are not working properly.

Technical Safety BC investigates approximately 10 serious CO incidents that take place in areas within our jurisdiction each year. We also respond to a multitude of reported equipment hazards that present a risk of CO exposure and we work to ensure the hazards are remedied before they lead to an incident. According to our

findings, most incidents occur in residences and involve residential furnaces, boilers or water heaters.

In July 2016, Technical Safety BC was alerted by natural gas provider FortisBC that a [CO poisoning incident](#) had occurred at a West Vancouver home. One individual had died and three family members had been admitted to hospital.

Technical Safety BC launched an investigation to understand the cause of the CO poisoning. We learned that the family had been running a boiler to heat their pool at the same time as the air handler for the air conditioner was operating. An opening in the ducting supplying the air handler within the boiler room created a negative pressure condition inside the room that contained the boiler. As a result, CO and other combustion products produced by the boiler did not vent outside but instead were circulated throughout the home by the air conditioning system. With all the doors and windows closed and no CO detectors installed, the residents had no way of knowing the home was filling with the colourless, odourless, tasteless toxic gas.

WorkSafeBC defines safe eight-hour exposure levels to CO as 25 parts per million (ppm). Home CO detectors are typically set to provide warnings at 30-70 ppm. Exposure to concentrations of 800 ppm is known to cause death within hours. The fire department reported measuring up to 900 ppm of CO within the home's ambient air.

After BCSA released our incident report, FortisBC asked BCSA gas safety officers to share the lessons learned from the investigation with its employees. In September 2016, BCSA attended three workshops for more than 100 FortisBC technicians to discuss CO hazards, incident investigations, the importance of incident reports, and what issues to look for in their day-to-day work.

“One of our roles is to investigate reported incidents, determine the cause and contributing factors, and recognize trends,” says Technical Safety BC's Liam McKearney, Gas Safety Officer. “But where we can really make a difference is when we share our learning with others to try and improve safety outcomes for the future.”

By working collaboratively with FortisBC, Technical Safety BC is taking the information gleaned from incident investigations and sharing it with the contractor community to help spread awareness of important safety risks. Technical Safety BC also works to

educate BC residents of the risks of carbon monoxide exposure through an annual awareness campaign that includes a paid advertising campaign, media outreach and social media.

More information about CO safety is available at www.technicalsaftybc.ca/carbon-monoxide.

SHARE ARTICLE ON



YOU MAY ALSO LIKE...

14 JULY 2022

LAARS® Mini-Therm JX gas-fired boiler recall

23 FEBRUARY 2022

Public safety advisory: Fader Industries

15 SEPTEMBER 2021

Common gas furnaces pose risk to the public

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

🔔 HIDE ALERTS ✕



Products ▾

About ▾

Careers



My Accounts

[Home](#) > [News & Events](#) > [Current page](#)

Print (PDF)

Technical Safety BC-led boiler investigation influences global standards

19 May 2017

ASSET OWNER BOILER, PV AND REFRIGERATION GAS SAFETY STORY



Have you ever waited a moment too long to light a barbecue and been surprised by the “whoosh” as built-up gas ignites? Safety professionals call this a “hard light-off” or delayed ignition and, if you are outside, the result is typically a yelp followed by jokes about singed eyebrows. But in many circumstances, it’s no laughing matter.

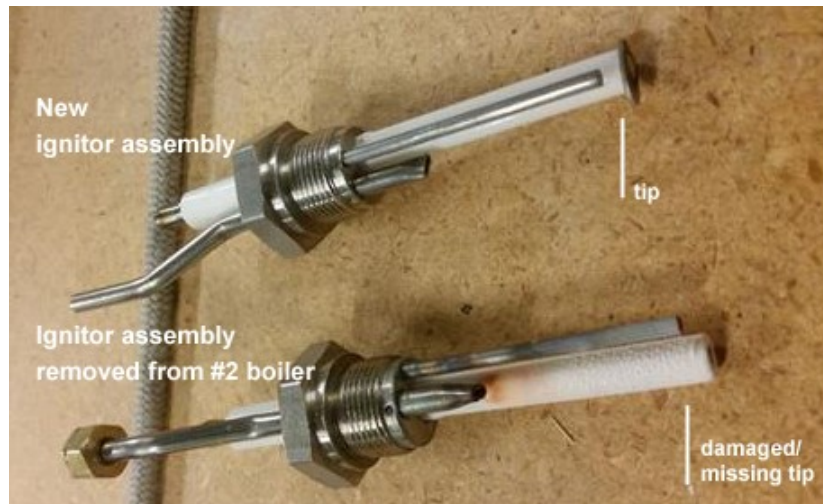
Several hard light-off incidents at commercial and industrial buildings around British Columbia were reported to Technical Safety BC between 2011 and 2015. Owners of specific models of gas-fired hot water boilers reported hearing a loud bang or pop during start-up or operation, often with associated damage to the boiler venting system.

“One of these delayed ignitions actually blew the venting off and the boiler continued to operate,” recalls Technical Safety BC’s Jeff Coleman, Leader, Engineering and Incident Investigations. “It was no longer venting properly and the products of combustion, including carbon monoxide, were staying inside the building.”

Thanks to the data reported to Technical Safety BC through past incidents, a trend became apparent. “Each time was a little different but we noticed it was the same manufacturer and same boiler model series in all the cases,” Coleman says. After an incident at a public athletics centre in Burnaby in October 2015, Technical Safety BC kicked off an in-depth investigation to prevent future occurrences.

Technical Safety BC brought together the manufacturer of the affected boiler, the boiler certification body and the facility owner to collaborate on an investigation and possible improvements. Building trust and communication between the parties was key and Technical Safety BC worked hard to keep the emphasis on mutual co-operation, collaboration and public safety.

Technical Safety BC guided the team through a number of activities including a review of the past incidents; interviews with witnesses, operators and maintenance contractors; and an examination of the boiler installation, components, gas supply and venting systems.



“The investigation quickly identified some commonalities among all the boilers that had malfunctioned,” says Chris Jorgenson, Technical Safety BC’s Administrator of Gas Equipment Approvals. The first was the presence of a “white-potted” igniter that functions as part of an igniter-injector assembly. A particular design feature of these older igniters caused the metal tip to snap or the ceramic tube to crack when heated. The location of the igniters also contributed to carbon deposit build-up, preventing a clean ignition every time.

Another issue involved the purge system, which is responsible for clearing out gas if lighting doesn’t happen immediately. The purge cycle was found to be too short and weak to clear gas out of longer chimneys. The damaged igniter tip, combined with a low blower speed during purge, likely caused the ignition of an increased amount of

gas within the boiler, forcing gas through and damaging the venting system.

Under the *Safety Standards Act*, a provincial safety manager can issue a safety order to prevent, avoid or reduce risk of personal injury or damage to property. Technical Safety BC's Gas Safety Manager, Brad Wyatt, issued a safety order that mandated an adjustment to the purge cycle, upgrade of the igniter, and regular service and maintenance requirements for these types of boilers in BC. "It is so important that these types of gas-burning equipment are installed to the manufacturer's requirements as well as regularly inspected, cleaned and maintained by qualified gas fitters," reminds Wyatt.

The manufacturer also noted several instances of maintenance neglect believed to be related to the incidents. It issued an updated technical service bulletin to alert owners of the potential issue and how to remedy it. The manufacturer also facilitated repairs to the damaged boilers and the replacement of white-potted igniters with the safer black-potted ones. All boilers of this type installed in BC are now required to have the igniters and the equipment serviced and maintained annually by a qualified gas fitter.

The implications of this investigation extend beyond BC. Underwriters Laboratories Inc., the certification body that certifies equipment of this kind, is currently clarifying the technical standards for gas-assist ignition system design and certification. When implemented, these changes will affect boiler certification standards at an international level.

This is just one example of how incidents reported to Technical Safety BC are resulting in wide-reaching changes to industry that are improving safety in the province and beyond.

This article was originally published in the [2016 State of Safety](#).

SHARE ARTICLE ON



YOU MAY ALSO LIKE...

23 FEBRUARY 2022

Public safety advisory: Fader Industries

4 MAY 2021

Gas recall: StaRite and Mastertemp Pool Heaters recalled due to fire hazard

26 FEBRUARY 2021

Ammonia safety order informational webinar

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)

[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest **COVID-19 information**.

🔔 HIDE ALERTS ✕



Products ▾

About ▾

Careers



My Accounts

[Home](#) > [News & Events](#) > [Current page](#)

Print (PDF)

Enforcing compliance with safety regulations: A shared responsibility

19 May 2016

- HOMEOWNER
- GAS
- ELECTRICAL
- SAFETY STORY



It was like finding a ticking time bomb: a 240-volt electrical distribution panel with no safety cover under the back deck of a suburban home. Anyone accessing the panel would need to stand in an inch of water that saturated the ground under the deck. There was no lighting in this dark, damp area, so the danger was difficult to spot. It was also completely accessible through an unlocked door, posing a severe shock hazard to anyone who might come in contact with the panel.

A tenant in the home who was having electrical issues submitted a hazard notification to Technical Safety BC, and an electrical safety officer made arrangements with the property owner to conduct a safety assessment of the home's electrical system. In addition to the distribution panel issue, the officer found numerous other hazards on the property including broken outlets and fixtures. All the work had been done by an unknown individual without the proper permits. Luckily these hazards were identified early, before a serious incident had taken place. The owner hired a licensed contractor and work was remediated under permit, with the appropriate declarations to Technical Safety BC.

While this was a concerning situation, Technical Safety BC safety officers are all too familiar with potential threats to lives and property due to hazards and non-compliance with safety regulations. In 2016, Technical Safety BC received over 400

notifications of hazards and people working without the proper certifications and permits.

“Our statistics show that work performed without a permit is approximately three times more likely to result in a serious hazard,” says Technical Safety BC’s Eric Samuelson, Safety Manager, Compliance & Enforcement. Hazards found by safety officers range from insignificant to severe and provide a good indication of how well duty holders independently understand and fulfill their safety obligations within the safety system.

Technical Safety BC spends considerable time working with duty holders to help them understand their obligations. “We work hard to provide education, awareness and guidance,” Samuelson says. “But when the law is ignored—particularly in the case of repeat offences—we will take enforcement actions to protect public safety.” Safety is a shared obligation and lies not only with the person who performs the work, but also with equipment owners, contractors, operators and homeowners. Says Samuelson, “It’s everyone’s responsibility to ensure that work undertaken in the province is compliant with the law and is done safely and securely, in the manner laid out within the *Safety Standards Act*.”

More information about enforcement, permits and compliance [is available here](#).

This article was originally published in the [2016 State of Safety](#).

SHARE ARTICLE ON



YOU MAY ALSO LIKE...

14 JULY 2022

LAARS® Mini-Therm JX gas-fired boiler recall

23 FEBRUARY 2022

Public safety advisory: Fader Industries

15 SEPTEMBER 2021

Common gas furnaces pose risk to the public

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

Codes, standards and regulations

Regulatory notices

Find a licensed contractor

Find a certified individual

Forms

Fees

Safety in BC

Safety stories

Incident investigations

Compliance and enforcement

State of Safety

Safety education

Get involved

News

Events

Engagement

Connect with us

Governance and leadership

Careers

Contact us

Sign up for newsletter

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident >](#)

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)



⚠️ COVID-19 client service update

Safety critical assessments and incident investigations are continuing. Read the latest [COVID-19 information](#).

 HIDE ALERTS 



[Products](#)  [About](#)  [Careers](#)



[My Accounts](#)

[Home](#) > [Multi-year Incident Case Studies](#)

STATE OF SAFETY 2017 MENU

About the State of Safety	
Management Discussion	
Understanding Safety Risk	+
Managing Safety Risk	+
Data by Technology	+
Safety Stories	
Multi-year Incident Case Studies	
Download Report	

Multi-year Incident Case Studies

CASE STUDY: DEROPEMENT INCIDENTS (JAN 2009 - JUNE 2016)

While aerial ropeways such as gondolas, chair lifts, rope tows and T-bars are typically very safe, each yet in BC there are incidents where a of a passenger ropeway departs from the sheaves. This is known in the industry as a deropement. This case study provides a detailed analysis of deropement incidents reported to Technical Safety BC from 2007 to 2015, and their causes.

[Read more](#)

CASE STUDY: CARBON MONOXIDE INCIDENTS (2007 - 2015)

Carbon monoxide (CO) is a poisonous gas that is colourless, odourless and tasteless. At low concentrations, symptoms of CO poisoning can mimic the flu: headaches, nausea, fatigue and dizziness. If inhaled in sufficient quantities, CO can interfere with the body's ability to absorb oxygen causing loss of consciousness and death. This case study provides a detailed analysis of carbon monoxide incidents reported to Technical Safety BC from 2007 to 2015, and their causes.

[Read more](#)

CASE STUDY: ELEVATOR LEVELING INCIDENTS (2009 - 2015)

When an elevator is called to a floor, the car's platform is required to stop within a certain distance of the floor when the doors are fully open. Older elevators constructed to codes earlier than the 2000 edition are required to level to within two inches of the landing, but newer elevators must level to half an inch. Due to a number of component failures or design limitations, elevators may level outside of this accepted clearance posing a tripping and falling hazard for people getting on or off the elevator. This case study provides a detailed analysis of elevator leveling incidents reported to Technical Safety BC from 2007 to 2015, and their causes.

[Read more](#)

CASE STUDY: AMMONIA RELEASE INCIDENTS (2007 – 2017)

An ammonia release incident is an unexpected and uncontrolled release of refrigerant from a system. Depending on exposure, health hazards can range from temporary mild discomfort to irreversible, serious damage to exposed tissues. This case study provides a detailed analysis of ammonia release incidents reported to Technical Safety BC from 2007 to 2017, and their causes.

[Read more](#)

Technology

ENERGY

Boiler, PV, Refrigeration

Electrical

Gas

Alternative Safety Approaches (ASA)

TRANSPORTATION

Amusement Devices

Elevating Devices

Passenger Ropeways

Railways

Products

Permits

Certification

Licences

Design registration

Assessments

Learning centre

Regulatory resources

[Codes, standards and regulations](#)

[Regulatory notices](#)

[Find a licensed contractor](#)

[Find a certified individual](#)

[Forms](#)

[Fees](#)

Safety in BC

[Safety stories](#)

[Incident investigations](#)

[Compliance and enforcement](#)

[State of Safety](#)

[Safety education](#)

Get involved

[News](#)

[Events](#)

[Engagement](#)

Connect with us

[Governance and leadership](#)

[Careers](#)


[Contact us](#)

[Sign up for newsletter](#)

Have you witnessed an incident or hazard that involves regulated work or a regulated product?

[Report an incident](#) >

 [Contact us](#)

 [1 866 566 7233](tel:18665667233) (8 am–5 pm, Monday–Friday)

 [Office locations](#)

© 2022 Technical Safety BC [Cookie policy](#) [Privacy policy](#) [Terms of use](#)

