



Young worker falls from third-storey balcony

Worker 1, a young worker, fell 18 feet 6 inches from an unguarded third-storey balcony to the ground below. The worker was in the process of installing siding above the sliding door of a newly constructed four-storey apartment complex when he fell. The worker died of a severe closed head injury.



Purpose of this report

The purpose of this online incident investigation report is to identify the causes and contributing factors of this incident to help prevent similar incidents and to support preventive actions by industry and WorkSafeBC. This online version is not the official WorkSafeBC report. It has been edited to remove personal identifying information and to focus on the main causes and underlying factors contributing to this incident.

Notice of Incident information

Number: 2005105910004

Outcome: Fatal

Core activity: Vinyl siding installation

Region: Lower Mainland

Date of incident: January 2005

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1 Factual Information

1.1 Work activity

In the morning, the employer of a vinyl siding installation company met with the crew for a briefing of the day's activities. Worker 1, a young worker, was assigned to work alone installing siding at ground level on townhouse blocks. Worker 2 was assigned to an apartment block, where he worked from the bucket of a self-propelled boom lift installing siding at the third-floor level.

1.1.1 Work on guarded inner balcony

During the morning coffee break, Worker 2 requested assistance with siding on the inner balcony located on the third floor of the apartment block (see Diagram 1).

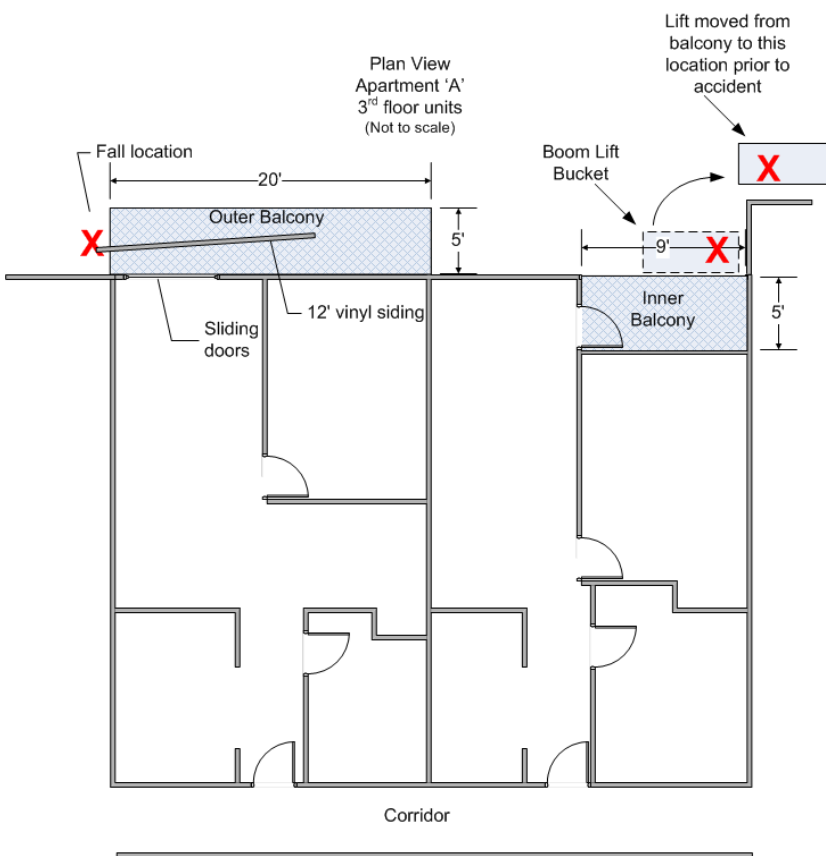


Diagram 1: This floor plan shows the inner balcony of one suite and the outer balcony another suite.

The employer assigned Worker 1 to this task. Worker 2 directed Worker 1 to go to the third floor so that the installation of the siding around the walls of the inner balcony would be finished. The inner balcony was 9 feet long and 5 feet wide and was accessible by a door from inside the unit. The deck was enclosed by three walls and had one unguarded 9-foot side. Worker 2 had positioned the bucket of the

boom lift along the unguarded balcony edge to provide fall protection for the work being done. Worker 1 was working on the deck and Worker 2 was in the bucket. It took 45–60 minutes to install the siding.

1.1.2 Work on unguarded outer balcony

After the inner balcony was completed, Worker 2 instructed Worker 1 to install the last pieces of siding above the sliding doors on the outer balconies of the second and third floors. Meanwhile, Worker 2 continued to install siding while working from the bucket of the boom lift, which was relocated as he worked (see Diagram 1).

The outer balconies are 20 feet long by 5 feet wide without guardrails on the exposed perimeter. A piece of siding is 12 feet by 8 inches. The area above the sliding doors was 18 feet by 3 inches, so two pieces of siding would be needed and would first need to be measured and cut to fit.

Worker 1 started work measuring the siding for the outer balcony of a third-floor suite. A 12-foot piece of siding was later found with a pencil mark scribed along its length 3 inches from the edge. The mark stopped within 30 inches of the end, and approximately 10 inches of siding was sticking past the end of the balcony (see Photo 1).



Photo 1: This photo shows the siding hanging over the unguarded end of the balcony. The arrow indicates the pencil line along the length three inches from the edge.

1.2 The incident

Worker 2 observed Worker 1 twice on the outer third-floor balcony (see Diagram 2). The second time, Worker 2 noticed that Worker 1's back was facing the unguarded edge of the third-floor balcony. Less than one minute after noticing Worker 1 the second time, Worker 2 heard a crash and saw Worker 1 on the ground below. He was wearing a hooded jacket with the hood over his head.

Worker 2 immediately called 911. The injured worker was transported to hospital, where he succumbed to his injuries.

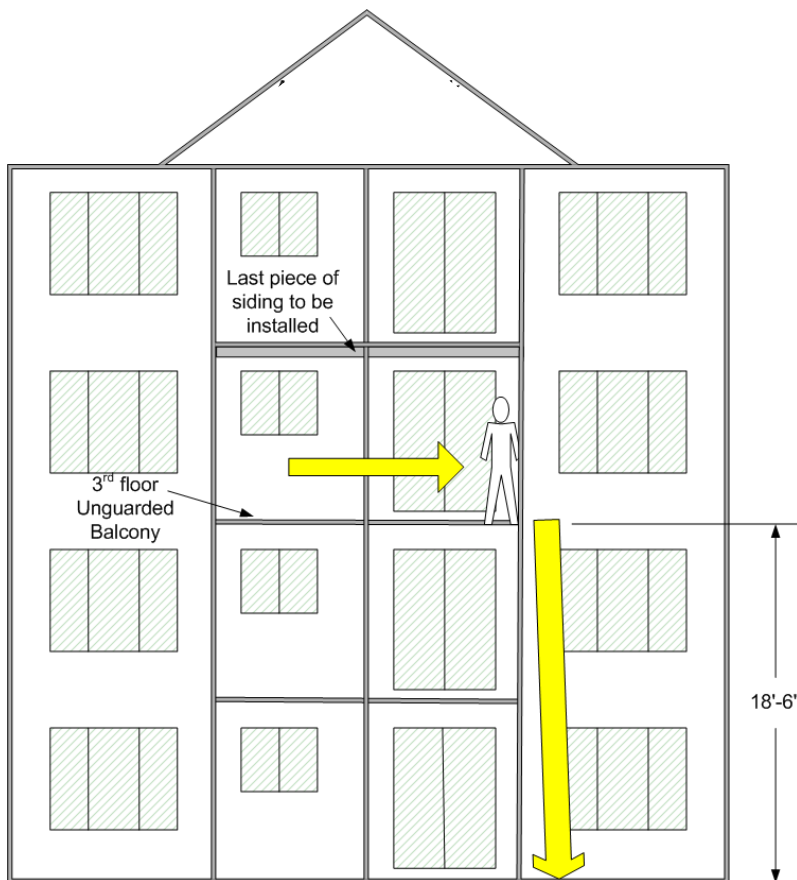


Diagram 2: This shows the elevation view of the apartment block. Arrows indicate Worker 1's fall location. He did not project outward in the fall, but landed near the edge of the end of the balcony, as if he stepped backward off the edge.

1.3 Employer

The vinyl siding installation company was a small business. The owner was actively working and was on-site at the time of the incident. The company had been working at the site since the summer of 2004 and a copy of a formal health and safety program was provided. The employer had not developed a written fall protection plan for work being done at a location where workers are not protected by permanent guardrails, and from which a fall of 25 feet or more may occur. Two months prior to the incident, WorkSafeBC had issued an inspection report to the employer for a violation of workers not wearing adequate fall protection while operating a boom-operated manlift.

After the incident, the employer showed investigators the incident scene and was stopped by the lead investigating officer from proceeding out onto the balcony without having any fall protection in place. There were footprints in the snow along the unguarded edge; the employer admitted they were his, made when he had walked out onto the balcony to view the location where Worker 1 fell from.

1.4 Prime contractor

The company acting as prime contractor was responsible for coordination of health and safety activities at the construction project. When the project was started early in 2004, a dedicated safety coordinator was on-site ensuring orientations, safety meetings, site coordination, and inspections were conducted. Written documentation was provided up to the summer of 2004, at which time the safety coordinator was promoted to another position.

The prime contractor did not replace the position of the safety coordinator, and there is no written documentation to show that there was coordination of health and safety activities after his promotion. The prime contractor had not reviewed any fall protection plan with the vinyl siding installation company, although WorkSafeBC had issued an inspection report to the prime contractor for violations referring to site coordination on three occasions within the last five years.

1.5 Property owner

The owner of the property had a written contract with the prime contractor to be the construction manager of the project.

1.6 Instruction and training

The foreman of the vinyl siding installation company stated that he would hire workers and give them a verbal orientation and instructions in regard to the tasks they were to perform, and he would ensure they worked with an experienced worker.

Worker 1 was a young worker who had worked for the vinyl siding installation company for less than three months; this was his first construction-related job. There was no written record of orientation or training for this worker. Worker 1 had attended two safety meetings, both about a month before the incident, and fall protection had been discussed.

There was a memorandum dated November 2004 that was sent out to all employees after a visit by a WorkSafeBC prevention officer. The memo is as follows:

With respect to recent violations of WCB programs we are issuing this memo for all employees to sign to acknowledge that they have been informed of the following policies. Further non-adherence to these policies will result in penalties as stipulated by WCB.

- 1) All employees on site will wear hard hats and approved footwear.
- 2) Proper fall protection will be used at all times.
- 3) If at any time you require any items to ensure your safety, please let your foreman know at once.
- 4) Your foremen have been instructed that if at anytime you are found to be without proper safety wear, you will be sent home immediately and will not be able to return to work until the next day. All lost wages will not be reimbursed.
- 5) Effective today, all foremen will be holding safety meetings once a week. Notes are to be taken and submitted to this office. All employees' feedback is welcomed.
- 6) Although the project is important, your safety is more important to us and your families.

Please work safe.

The foreman stated that all employees were required to read and sign this memo. Worker 1 had signed the memo. The foreman also stated that everyone was shown how to use the harnesses and told that fall protection must be used over 10 feet or any dangerous areas where they don't feel safe. There were no inspectional records provided to indicate workers were being monitored.

Worker 2 stated that he had never been trained by his employer in the use of fall protection, but he had been trained by a former employer and was familiar with fall protection requirements.

A RCMP constable reported that when he talked to one of the workers at the scene about wearing some sort of fall protection the worker replied that "fall protection was optional."

At the time this report was written, there were copies of only four safety meetings provided by the employer—three meetings prior to the incident and one meeting after the incident.

1.7 Supervision

A foreman is a person who supervises workers or the work done by others. On the day of the incident, the employer was working on-site; the site foreman was on holidays and no other designated supervisor had been appointed in his absence. The formal written Health and Safety Program under "Supervision" states:

FOLLOW UP PROCEDURES

All Supervisors shall monitor employee performance to ensure that safe work practices are being used and that Job Procedures are being followed. It shall be the Supervisor's responsibility to record these observations and correct practices as required.

It shall be the Manager's responsibility to monitor these records and review results with the Supervisor on a regular basis.

There were no written records of the supervisor's observations provided by the employer.

1.8 Weather conditions

It was snowing lightly at the time of the accident approximately -2 degrees Celsius, with a wind chill factor to -8 degrees Celsius. There was a light accumulation of snow along the 20-foot edge of the outer balcony.

2 Analysis

2.1 Young worker

Worker 1 was a young worker and had worked in construction for less than three months at the time of his death. Construction is a high-risk occupation. The temporary nature of worksites in the construction industry increases the likelihood of accidents happening to all workers in the first year on the job. In the province of British Columbia, statistics¹ show that more than half of accidents to young workers aged 15–24 occur in the six months on the job, and almost 20 percent occur within one month. The injury rate for young male workers is about 33 percent higher than the overall injury rate in BC. Working at an elevation is considered the second of the “top seven dangers facing BC's young workers.”²

Young workers generally lack experience in the tasks they are requested to perform and are less able to recognize workplace hazards. Young people generally do not receive adequate health and safety training. As they have little experience in the workforce in general, they also do not recognize how much training may be necessary. Young workers may be asked to do more dangerous jobs and they may not understand their rights as workers. They are often unwilling to ask questions.³

Earlier in the day Worker 1 had been working on ground level and was never instructed to take his fall protection equipment with him when originally assigned by the employer to assist Worker 2 with the third-floor inner balcony.

2.2 Lack of fall protection while working on outer balcony

After completion of the inner balcony, Worker 1 moved to a suite with an outer balcony to finish installing the last pieces of siding above the sliding doors. This may have been the first time Worker 1 had been on the third-floor outer balcony since starting the job.

An explanation as to why the young worker did not recognize a fall hazard while on the third-floor balcony could be explained in an article by an occupational psychologist on risk-taking behaviour: “A person's propensity [tendency] to engage in risky behavior is increased if a risk has not previously caused harm when engaged in a given type of behavior, and/or whether the potential rewards outweigh any negative outcomes. Risk propensity is also determined by those with whom a person interacts, as coworkers' expectations exert strong influences on the way a person acts. Thus, while individual

attitudes and personalities can be important in determining behavior, the power of group norms on risk-taking behavior can also be significant.”⁴

2.3 Marking the siding

There were several pieces of siding on the deck, and the last piece of siding to install above the sliding doors was approximately 18 feet in length. Worker 1 could have easily measured the width by extending his tape measure up to the underside of the roof while standing on the deck. A full 12-foot piece of siding would be needed to be marked, cut, caulked, and then placed into position. A final measurement could be taken to finish off the remaining piece.

A 12 foot by 8 inch piece of siding was found lying on the deck (see photo 1 on page 4). A typical method of measuring a long piece of material to be cut to width is to extend your tape measure out to the desired width (in this case 3 inches) and place your pencil at the end of the tape. This requires two hands to do, and the siding would have to be placed flat on the deck. The worker would bend over to scribe the piece, walking backwards in doing so. Due to the cold wind, Worker 1 was wearing a hooded jacket which covered a portion of his lower face, cutting off his peripheral vision. The siding had been scribed with a pencil 3 inches from the edge, starting at one end and stopping 30 inches from the other end. In all likelihood he stepped backward off of the deck while marking the piece of siding.

2.4 Safety culture

Prior to the incident, the employer instructed Worker 1 to work at the third floor (over 18 feet) but did not ensure the new young worker was clear about wearing fall protection. After the incident the employer walked onto the balcony without fall protection. An RCMP constable who attended the scene asked an employee if the worker should have been wearing something to prevent him from falling and the employee answered that fall protection is “optional.” It is very evident that there was a lack of safety awareness and commitment to safety on this site and that this employer did not recognize the risk of fall hazards.

The prime contractor contributed to this poor safety culture by not ensuring sub-trades were complying with the site rules and the Occupational Health and Safety Regulation. The prime contractor did not ensure the siding contractor had a fall protection plan in place prior to work being done, and the prime contractor was not conducting regular safety inspections to ensure sub-trades were complying with the Occupational Health and Safety Regulation.

This poor safety culture sets a pattern for continued unsafe acts and can be summed up by a quote from the article on risk-taking behaviour: “People relate to group norms in three stages: compliance, identification and internalization. When joining a group, people comply with the group norms to avoid social sanctions from the group. As time passes, they identify with the rest of the group and do similar things because they want to be seen as a member of that group. Eventually, people internalize the group norms and naturally consider them to be the best way to think and behave.”⁵

3 Conclusions

3.1 Findings as to causes

- 1) The worker fell 18 feet 6 inches from a balcony and died of a severe head injury.
- 2) There were no guardrails and the worker did not wear personal fall protection.
- 3) There were no written training records for this young worker.
- 4) There was no fall protection plan established for the work being done.
- 5) There was no evidence that supervisors were monitoring or recording that safe work practices were being used and that job procedures were being followed.
- 6) Management was not monitoring records and reviewing results with the supervisor on a regular basis.
- 7) The prime contractor was not coordinating all the health and safety activities of employers on this worksite.

3.2 Findings as to underlying factors

WorkSafeBC studies have shown that for young male workers the injury rate (the number of short-term disability claims per 100 person-years of employment) is higher than the overall provincial average. This fact shows the importance for employers to ensure that new workers and especially young male workers are adequately instructed, trained, and supervised in the safe operation of their duties.

4 Orders Issued after the Investigation

WorkSafeBC issued two orders after the investigation. An order requires an employer to take steps to comply with the *Workers Compensation Act* or Occupational Health and Safety Regulation, to take measures to protect worker health and safety, or to fix a hazardous condition. An order is not intended to identify fault on the part of the employer but to ensure that unsafe conditions are identified and corrected and that the employer complies with the Act and the Regulation. An employer may ask the Review Division to review an order; the Review Division may confirm, vary, or cancel an order.

In addition to issuing orders, WorkSafeBC may recommend proceeding with an administrative penalty against an employer. In order to protect the privacy of individuals, this report does not give details of any penalty proceeding arising from this incident as that would identify the employer. Penalties are fines for health and safety violations of the *Workers Compensation Act* and/or the Occupational Health and Safety Regulation. For information on when penalties are considered and how the amount of the penalty is calculated, see the [penalty FAQs](#) on WorkSafeBC.com. [Companies that have been penalized](#) are also listed on the web site.

4.1 Order to the vinyl siding installation company

This section summarizes an order to the vinyl siding installation company. The investigation found that this employer was in contravention of the *Workers Compensation Act*, [section 115\(2\)\(e\)](#), which states that an employer must provide to the employer's workers the information, instruction, training, and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace.

The employer was ordered to ensure the health and safety of its workers, including but not limited to the following:

- Provide workers with adequate instruction, training, and supervision necessary to ensure the health and safety of those workers in carrying out their work duties.
- Where workers are working at heights 3 metres (10 feet) or more, or where a fall from a height involves an unusual risk of injury, ensure that workers are protected from falling in accordance with the requirements set out in Part 11 of the Occupational Health and Safety Regulation.
- Develop an adequate fall protection plan that is site-specific when workers are working over 7.5 metres (25 feet) in height.

4.2 Order to the prime contractor

This section summarizes an order to the prime contractor. The investigation found that this employer was in contravention of the *Workers Compensation Act*, [section 118\(2\)\(b\)](#), which states that the prime contractor of a multiple-employer workplace must do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with Part 3 of the *Workers Compensation Act* and the regulations in respect of the workplace.

Without delay, the prime contractor was ordered to take measures to ensure compliance with the *Workers Compensation Act* and the Occupational Health and Safety Regulation, including but not limited to coordination of subcontractor activities such as worker orientations, tool box talks, regular safety meetings, accident investigations, the use of fall protection, and inspections of the workplace to prevent the development of unsafe working conditions.

5 Health and Safety Action Taken

In addition to the specific actions below, employers, workers, or others in industry may have taken measures to prevent a recurrence of this type of incident. Employers are expected to comply with any orders issued. At WorkSafeBC, the Lessons Learned committee examines recommendations from incident investigations to see what can be done to prevent similar incidents.

5.1 WorkSafeBC

WorkSafeBC produced an audio slide show on this incident:

<http://www2.worksafebc.com/Publications/Multimedia/SlideShows.asp?Reportid=34281>

Notes

¹ Source: <http://www2.worksafebc.com/Topics/YoungWorker/FAQ.asp#Young>

² Source: <http://www2.worksafebc.com/Topics/YoungWorker/Top-Seven-Dangers.asp>

³ Source: <http://www2.worksafebc.com/Topics/YoungWorker/FAQ.asp>

⁴ Cooper, D. "Psychology, risk and safety: Understanding how personality and perception can influence risk taking." *Professional Safety* (November 2003): 42.

⁵ Cooper, D. "Psychology, risk and safety: Understanding how personality and perception can influence risk taking." *Professional Safety* (November 2003): 42–43.

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