



Framer falls through stair openings

A framer was framing walls on the third level of a three-storey single-family dwelling. He was working beside an uncovered stair opening with no guardrail. The stair openings for the second and third levels were vertically aligned. The stairways had not yet been constructed, so there was a drop of 18.5 feet from the third level to the first-level basement concrete floor. The framer fell through the successive openings to the concrete floor below. He was taken to hospital but later died of his injuries.



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: 2006155070109

Outcome: Fatal

Core activity: Framing

Region: Lower Mainland

Date of incident: June 2006

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1 Factual Information

1.1 The firms

The incident occurred on a single-dwelling residential construction site. The owner of the site and the prime contractor is a company doing business as Epic Homes. Jewell Ventures Inc. is a construction company that was subcontracted by Epic Homes to provide framing services for a new housing project.

1.2 Sequence of events

On the day of incident, workers from Jewell Ventures were working on a three-storey single-family home. Work started at 07:30. The framing was behind schedule, and the foreman's intention was to focus on building walls. The roof trusses were arriving the next day, and in order to place them, the internal and external walls had to be completed. Once the walls were completed and the roof trusses in place, the foreman intended to install the stairs. Levels 2 and 3 already had stairwell openings, each one approximately 7 feet 8 inches by 7 feet 8 inches (see Figure 1). There was also a smaller stairwell opening leading to the loft just above Level 3.

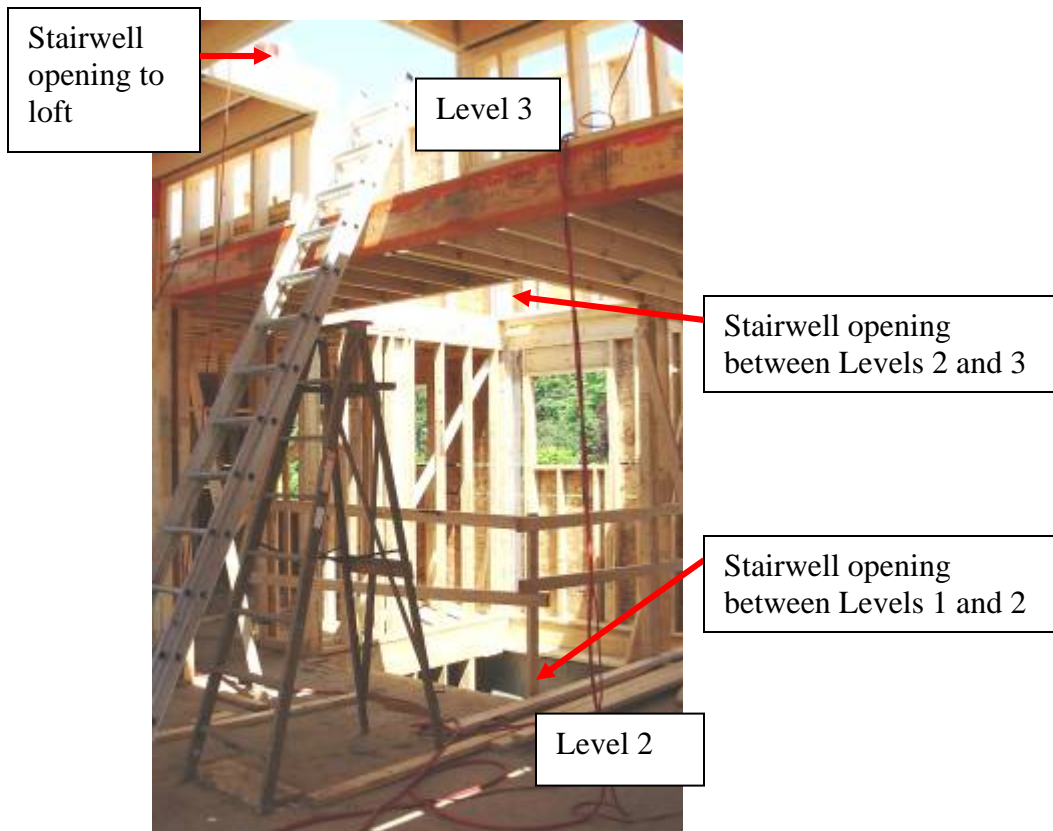


Figure 1: The vertically aligned stairwell openings going from Levels 1 to Level 3. The stepladder was used for access and egress between Levels 2 and 3. The guardrails and extension ladder were put in place after the incident.

The framer was assigned to help the foreman build the walls. The framer and the foreman accessed Level 3 by using a stepladder positioned on Level 2 under the stairwell opening (see Figure 1). The top plate of this stepladder was approximately 2 feet under the Level 3 loft opening.

The framer was framing an internal wall, one corner of which slightly overlapped the Level 3 main stairwell opening (see Figure 2). The framer had vapour barrier laid out, ready to nail to the top plate of the wall, and he was using a pneumatic nailer. The foreman was framing the west wall. He was also using a pneumatic nailer.

At approximately 09:00, the foreman was looking down at his tape measure when he heard a noise. When he looked up, the framer was no longer on Level 3. The framer had fallen through the two vertically aligned open stairwells, a distance of 18.5 feet (5.6 metres), and landed on the concrete floor of the basement (see Figure 3). First aid was performed, and the framer was taken to hospital, where he later died of his injuries.

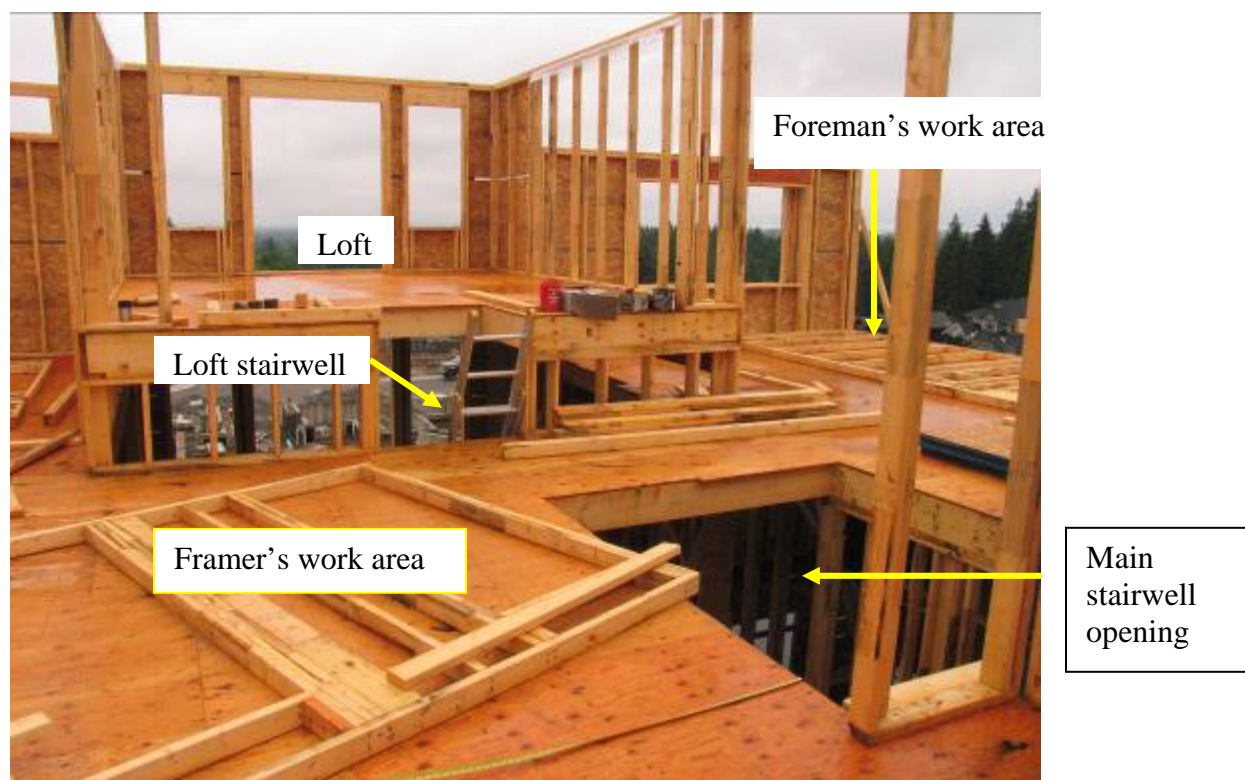


Figure 2: Layout of Level 3, including the approximate positions of the framer and the foreman at the time of the incident. The main stairwell is vertically aligned with the stairwell on Level 2. There are several places where a worker could fall from a height: the main stairwell, loft stairwell, loft leading edge, and the west leading edge (on the right). At the time of the incident, a stepladder rather than the extension ladder was used for access.



Figure 3: Distance from Level 3 to concrete floor.

1.3 Workers' experience

The framer was a young worker who had worked for Jewell Ventures for a few years. He was described as one of the best framers on the crew. The foreman was an experienced carpenter who had been working for Jewell Ventures for a few years.

1.4 Fall prevention systems

None of the stairwell openings at the incident site were covered, nor were railings placed around any of them. The leading edge of the west wall did not have railings along it, nor did the leading edge of the loft, nor the loft stairwell (see Figure 2). No fall prevention systems or personal fall protection systems were being used on Level 3 at the time of the incident. The framer and foreman were working 18.5 feet above the basement level.

The investigation was told that workers at Jewell Ventures did not normally use fall protection when framing walls, only when working on the roof. It was also stated that it had been normal practice for years to use a stepladder to access and leave higher floors; the stairs in single-family dwellings were constructed at a later stage, when the upper floors were finished.

1.5 Occupational health and safety programs

1.5.1 Epic Homes

According to Epic Homes' documentation, Epic Homes conducted a worker safety orientation for its own employees in January 2006. The topics covered included the following:

- Fall protection must be in place at all locations 10 feet or more above grade.
- All workers are to report immediately any unsafe work practice or condition.

Epic Homes' policy statement for this worksite contains provisions for a safe and productive work environment for employees and subcontractors, for working safely and following safe work procedures, and for holding safety meetings with subcontractors. The statement also contains provisions for subcontractors to inspect their place of work, for covering floor openings and installing guardrails for falling hazards of 10 feet or more, and a prohibition against working from the top two rungs or steps of a ladder.

The policy states that subcontractors, supervisors, and foremen are responsible for ensuring their employees are properly trained and follow the correct procedures and regulations, and for correcting any and all unsafe procedures or situations. The policy also states that the site managers of all trades working on-site at the time are required to hold separate safety meetings at least once a month. The purpose of these meetings is to outline the requirements to work on-site. The policy also states that all openings must be covered immediately with covers sufficiently strong to withstand the load and that handrails with two rails must be installed on all openings.

Epic Homes regularly held safety meetings on the construction site between December 2004 and the date of the incident in June 2006. The sign-in sheets indicate that Jewell Ventures employees frequently attended. According to Epic Homes' records, the framer attended at least two safety meetings at which fall protection was discussed: one in 2005 when fall arrest was discussed, and one in 2006 when fall arrest straps for siders and roofers was discussed. The owner of Jewell Ventures attended at least one meeting at which fall protection was discussed. It is not clear, because of illegible signatures, whether the foreman attended any of these meetings.

The site superintendent did not document any safety inspections of subcontractors that may have been conducted.

1.5.2 Jewell Ventures

At the time of the incident, Jewell Ventures did not have a written occupational health and safety program and did not hold site-specific safety meetings. Jewell Ventures did receive a package of safe work practices in the policy statement from Epic Homes; this addressed floor openings and ladders at the site.

Employees of Jewell Ventures attended safety meetings held by Epic Homes, although not all Jewell Ventures employees attended each meeting. The owner of Jewell Ventures stated that Epic Homes left it to the trades to enforce safety practices themselves.

2 Analysis

The evidence does not reveal how the framer fell—for example, whether he tripped, or slipped on the vapour barrier, or stepped backwards through the stairwell opening. The analysis focuses on why the framer’s fall was not prevented or arrested.

2.1 Why didn’t the framing company use standard safety measures?

Safe work practice in single residential housing is to use fall prevention techniques, including covering the floor openings, installing guardrails, and using personal protective equipment. The investigation looked at why journeymen carpenters of a framing company did not follow standard safety practices.

Timing and expediency appear to be the key factors. A critical benchmark of single-family dwelling construction is placing (landing) the roof trusses. To place the trusses, the external walls and at least some of the internal walls must be finished to provide structural stability. Roof trusses are typically delivered on a tight schedule, require advance scheduling, and involve booking a crane. Once the roof trusses are in place, the roofing can be installed. Once roofed, the interior is protected from adverse weather, which allows the internal trades to begin their work. The focal point for many framers therefore becomes getting the walls erected.

Constructing stairs is a specialty activity usually performed by experienced framers. These framers are the same people who take the lead in erecting the walls and ensuring that less experienced workers do the job correctly. Until the stairs are built, ladders allow for rapid access to and egress from upper levels.

By long-standing habit, many framers are not willing to install the coverings and guardrails required to prevent falls. Nor are they willing to consistently use personal fall protection systems, which are regarded as interfering with their ability to work smoothly and rapidly.

The above-mentioned factors help explain why lead framers and less experienced framers may not see the installation of stairs and the use of coverings, guardrails, and personal fall protection systems as absolutely necessary safety measures, but rather as time-consuming specialty tasks that can wait until later in the construction process.

In this train of thinking, expedient production replaces standard safety measures, and shortcuts, instead of being occasional occurrences, become the unstated rule.

2.2 Role of the prime contractor

In this incident Epic Homes, the prime contractor, exercised a certain amount of diligence in establishing written safe work practices:

- It distributed those practices to the subcontractor, Jewell Ventures.
- It held safety meetings with subcontractors on the construction site.

However, the evidence strongly suggests that Epic Homes did not extend this diligence to ensuring, through a system of formal inspections, that the subcontractors were actually following the safe work procedures. A system of formal inspections by Epic Homes would have likely revealed that Jewell Ventures was not using fall prevention measures, and such inspections might have prevented this incident.

3 Conclusions

3.1 Findings as to causes

3.1.1 *Fall from height*

The framer fell—likely by a slip, a trip, or an inadvertent step—over the unguarded edge of an open stairwell. He fell 18.5 feet to the basement level. There were no fall protection measures in place.

3.2 Findings as to underlying factors

3.2.1 *Expedient production replaced safe work practices*

The framing company's culture of expedient production likely led the company to ignore fundamental safe work practices. The framing company ignored the high hazard of falls by working without standard fall prevention or protection systems. Supervision for the framing company did not include ensuring that fall prevention systems were in place and that workers followed safe work procedures.

3.2.2 *Lack of inspection and enforcement of safe work procedures by the prime contractor*

The prime contractor did not ensure, through inspections of known high hazards, that work was being conducted safely on the worksite.

4 Orders Issued after the Investigation

WorkSafeBC issued orders to Jewell Ventures and Epic Homes after the incident. 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. 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 Orders to framing company

This section summarizes three orders issued to Jewell Ventures after the incident. This employer was found in contravention of the Occupational Health and Safety Regulation, [section 11.2\(1\)\(b\)](#), which states that an employer must ensure that a fall protection system is used when work is being done at a place from which a fall of 3 metres (10 feet) or more may occur. The employer was ordered to ensure floor openings are securely covered or guarded by fixed or movable guardrails.

This employer was also found in contravention of the Occupational Health and Safety Regulation, [section 20.5\(5\)](#), which states that a stairway comprised of at least framing, treads, and a handrail must be provided to each floor level before construction of the next floor or deck surface is undertaken, and the treads on the stairway must not create a tripping or slipping hazard. The employer was ordered to ensure that stairways meeting these requirements are provided to each floor level before construction of the next floor or deck surface is undertaken.

This employer was also found in contravention of the Occupational Health and Safety Regulation, [section 13.5\(c\)](#), which states that a ladder must have sufficient length to project approximately 1 metre (3 feet) above the upper landing to which it provides access. At the time of the incident, the upper level was accessed by a stepladder that was approximately 2 feet short of the floor it was intended to access.

4.2 Order to the prime contractor

The investigation found that the company doing business as Epic Homes 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.

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