



***Building Inspection Consulting - Residential - Commercial  
Industrial - Special Services & Projects***

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**Report #:** 8291-2019

October 11th, 2019

Lawyers & Company  
Suite 100 - 1000 Davies Street  
Vancouver, B.C.

Attention: Mr John Smith

Dear Mr Smith

**RE:** Crank v. Lire Response Report

**1.0. Qualifications, Professional Affiliation & Certifications**

- 1.1.** I am solely responsible for the opinions in this report. I certify that I am aware that my duty as an witness is to assist the Court and that I must not be an advocate for any party when giving my expert opinion to the Court. I have made this report in the conformity with that duty. I will, if called upon to give oral and/or written testimony, give that testimony in accordance with that duty.
- 1.2.** I have been performing various types of building and property investigation survey inspections in the Province of British Columbia & Western Canada since 1990 and have completed over fifteen thousand various types of assessment survey inspections and have been in the construction industry for over 40 years. I'm a member in good standing with the Applied Science Technologists & Technicians of British Columbia Property Inspectors (ASTTBC-PI), International Association of Certified Property Inspectors and several other certification organizations.

I have been involved with several types of small to large building projects, including residential, commercial and industrial building consulting, problem solving and special projects. I have been trained to identify the positive attributes, maintenance requirements and explain potential problems, issues, deficiencies, and concerns to all building and non-building type situations.



### **1.3. - Applied Science Technologists & Technicians of B.C. Property Inspectors**

- Certified Building Technician, CTech
- Certified House Inspector, CHI
- Certified Commercial Inspector, CCI
- Registered Reserve Fund Annalist, RRFA-L
- International Association of Certified Property Inspectors, CPI
- Certified Master Inspector, CMI
- Certified Wood Energy Technical Transfer, WETT
- IAC2 Certified Mold Technician, IAC2-01-4992
- Residential Indoor Air Quality Investigator, CMHC
- Certified Asbestos Assessment Technician, CABI-13-003
- HAAG Certified Residential & Commercial Roof Evaluator - Inspector, 201310706
- IIBEC International Institute of Building Closure Consultants - Quality Assurance Observer
- Consumer Protection BC - Home Inspector License number 47668
- Consumer Protection of B.C. - Approved Government Inspector Trainer, Mentor and Evaluator

## **2.0. Instructions**

I, Dave Brice, have been asked in writing by request of Lawyers & Company to provide an opinion with respect to a personal injury claim for damages regarding injuries sustained as a result of a fall which occurred on March 31st, 2017 at a residential building being constructed at 1000 - 10th Ave, Surrey, B.C.

## **3.0. Facts & Assumptions Relied Upon**

I have viewed the factual allegations as set forth within the instructional letter dated August 21st, 2019 from Lawyers & Company of which are the following;

**3.1. A.** Factual Background, page 2 & page 3.

**3.2. B.** Allegations, page 3 & page 4.

**3.3. C.** Examination for Discovery Evidence of the Defendants, Page 4, page 5 & page 6.

**3.4. D.** Law, page 6

**3.5. F.** Documents, page 8. The following received materials as follows;

**3.5.1.** Notice of Civil Claim;

**3.5.2.** BCEHS Patient Care Report dated February 31st, 2017;

**3.5.3.** Surrey Building Bylaw, 2012 No 17850;

**3.5.4.** Property title search;

- 3.5.5. City of Surrey Building Permits and Building Inspection Notes;
- 3.5.6. Construction photos of the exterior of the house on the property;
- 3.5.7. Examination for Discovery transcripts of the Defendants;
- 3.5.8. Photos of the main floor stair case and second floor with installed handrails and guardrails; and
- 3.5.9. Occupiers Liability Act.

#### **4.0. Documents Relied Upon**

The following documents were used for the facts and assumptions of which my opinion is based;

- 4.1. British Columbia Building Code 2012 including all revisions up to December 2018.  
Office of Housing and Construction Standards.  
Division B - Part 9 "Housing and Small Buildings".  
Section 9.8. Stairs, Ramps, Handrails, and Guards.  
Section 9.8.7. Handrails - pages 316 and 317.  
Section 9.8.8. Guards - pages 318, 319 and 320.
- 4.2. Handrails Requirements: BCBC 2012 Part 9 - Section 9.8.7 Handrails.  
A handrail shall be installed such that no position on the stair or ramp is more than 32 inches (825 mm) from a handrail.  
Sub Section 9.8.7.1. 3) a) interior stairs have not more than 2 risers.
- 4.3. Continuity of Handrails Requirements: BCBC 2012 Part 9 - Section 9.8.7 Handrails.  
A handrail shall be installed such that no position on the stair or ramp is more than 32 inches (825 mm) from a handrail.  
Sub Section 9.8.7.2. 2) For stairs or ramps serving a single dwelling unit at least one required handrail shall be continuous throughout the length of the stairs or ramp.
- 4.4. Termination of Handrails Requirements: BCBC 2012 Part 9 - Section 9.8.7 Handrails.  
A handrail shall terminate in a manner that will not obstruct pedestrian travel or create a hazard.  
Sub Section 9.8.7.3. 2) Except for stairs and ramps serving only one dwelling unit at least one handrail at the sides of a stair or ramp shall extend horizontally not less than 12 inches (300 mm) beyond the top and bottom of each flight or ramp.
- 4.5. Height of Handrails Requirements: BCBC 2012 Part 9 - Section 9.8.7 Handrails.  
A handrail is required at all steps where there are four or more risers.  
Sub Section 9.8.7.4. 2) Except as provided in Sentences (3) and (4), the height of handrails on stairs and ramps shall be,  
a) not less than 34 inches (865 mm).

**4.6. Ergonomic Design: BCBC 2012 Part 9 - Section 9.8.7 Handrails.**

All handrails shall be constructed so as to be continually graspable along their entire length with no obstruction on or above them to break a handhold.

Sub Section 9.8.7.5. 1) A clearance of not less than 2 inches (50 mm) shall be provided between a handrail and any surface behind it.

**4.6. Design and Attachment of Handrails: BCBC 2012 Part 9 - Section 9.8.7 Handrails.**

Handrails and any building element that could be used as a handrail shall be designed and attached in such a manner as to resist a concentrated load at any one point.

Sub Section 9.8.7.7. 2) Where a handrail serving a single dwelling unit is attached to wood studs or blocking, the attachment shall be deemed to comply with Sentence (1) where

- a) the attachment points are spaced not more than 47 inches (1.2 m) apart,
- b) the first attachment point at either end is located no more than 12 inches (300 mm) from the end of the handrail, and
- c) the fasteners consist of not less than 2 wood screws at each point, penetrating not less than 1 1/4 inches (32 mm) into solid wood.

**4.7. Guard Rail Requirements: BCBC 2012 Part 9 - Section 9.8.8. Guards.**

Section 9.8.8.1. Required Guards.

1) Except as provided in Sentences (2) and (3), every surface to which access is provided for other than maintenance purposes, including but not limited to flights of steps and ramps, exterior landings, porches, balconies, mezzanines, galleries and raised walkways, shall be protected by a guard on each side that is not protected by a wall for the length,

**4.8. Guard Rail Requirements: BCBC 2012 Part 9 - Section 9.8.8. Guards.**

Section 9.8.8.3. Height of Guards.

- 1) Except as provided in Sentences (2) to (4), all guards shall be not less than 42 inches (1070 mm) high.
- 2) All guards within dwelling units shall be not less than 36 inches (900 mm) high.
- 4) Guards for flights of steps, except in required exit stairs, shall be not less than 36 inches (900 mm) high.

**Note 1:** From the top of a guard railing to the walkway surface is less than 24 inches (600 mm) a guard rail must be installed with a minimum height of 36 inches (900 mm).

**Note 2:** From the top of the guard railing to the walkway surface is more than 5 feet - 11 inches (1.8 meters) a guard rail must be installed with a minimum height of 42 inches (1070 mm).

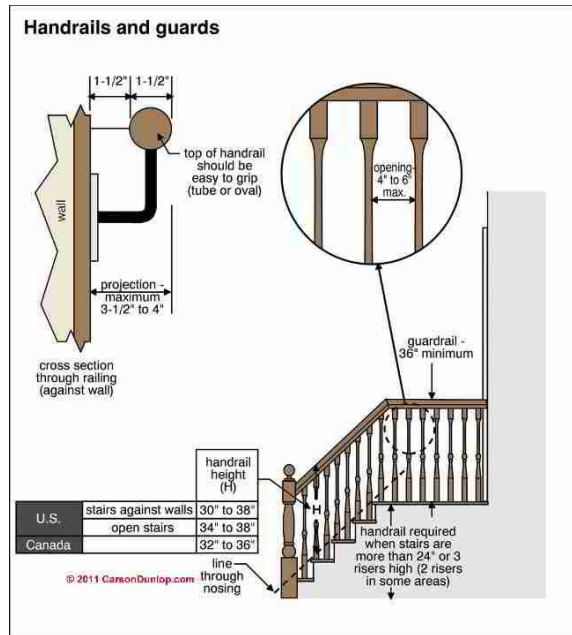
**4.9. Guard Rail Requirements: BCBC 2012 Part 9 - Section 9.8.8. Guards.**

In general, openings in guards must prevent the passage of a spherical object having a diameter of 4 inches (100 mm) in order to prevent small children from crawling through them.

Section 9.8.8.5. Openings in Guards.

1) Except as provided in Sentence (2), openings through any guard that is required by Article 9.8.8.1. shall be of a size that will prevent the passage of a spherical object having a diameter of 4 inches (100 mm) unless it can be shown that the location and size of openings that exceed this limit do not represent a hazard.

- 4.10.** National Building Code 2015 - "Illustrated User Guide" including all revisions up to December 2018.  
 Canadian Commission on Building and Fire Codes.  
 National Research Council Canada.  
 Division B - Part 9 "Housing and Small Buildings"  
 Section 9.8. Stairs, Ramps, Handrails and Guards.  
 Section 9.8.7. Handrails - pages 69, 70, 71 and 72.  
 Section 9.8.8. Guards - pages 73, 74, 75, 76, 77 and 78.



**Exhibit A**

**5.0. Opinion Statement**

- 5.1. Handrails:** Handrails are intended to reduce the risk of falling on the stairs and ramps. They must be located so that they can be reached by users at any position on the stairs or ramp. Handrails on stairs and ramps provide additional support for the physically impaired and guidance for the sight-impaired. They have different purpose then guards and guardrails which are primarily intended to prevent people from falling off the side of a stairs or ramp. The requirements for the single family residential home with the design and construction of interior stairs should have had installed handrailing along one side of the stairs and along one and/or both sides of the second floor walk ways as per required by the British Columbia Building Code 2012.
- 5.2. Guards:** Guards are required in order to reduce the risk of accidental falls from one level to another where the difference in elevation between the two levels is sufficient to cause significant injury. Generally, guards are required for the openings sides of stairs, ramps, landings, balconies, porches, decks, mezzanines, galleries and raised walkways where there is a difference in elevation of more then 24 inches (600 mm) between the walking surface and the adjacent surface or where the adjacent surface within 4 feet (1.2 meters) of the walking surface has a slope of more then 1:2.

The purpose of the minimum guard height is to insure that guards are high enough to help prevent accidental falls over the guard. The height of the guard should be close to the waist height of an average person so that jostling or pushing under crowded conditions will not result in accidental falls over the guard.

Referring to the National Building Code 2015 (NBC), Part 9 of Division B, Housing and Small Buildings. Table 9.8.-C "Minimum Guard Heights", summaries the minimum heights for guards. Where a handrail is required, the top of the guard can be used as the handrail if it is at the proper height. According to NBC Sentence 9.8.7.4.(2), required handrails must be 34 to 42 inches (865 mm to 1070 mm) high.

## **6.0. Conclusion**

The main floor stairway connected and leading to the second floor landing of the residential dwelling having failed to have installed and attached to the stairway hand railing along and attached to the wall, along the opening side of the stairway guard railing and guard railing attached along the outside edge of the second floor landing areas at the time of the accident represented an "unusual" danger a probable risk of injury to those on the Property.

The remedy and precautions that could have been taken by the property owners would have been to install as indicated by the building inspector and by certain required building standards, best practice and code requirements is to install along the entire wall length of the stairway handrailing along and attached to the wall, along the opening side of the stairway guardrailing and guardrailing attached along the outside edge of the second floor landing areas of which probably protect the safety of the persons on the Property from this unusual danger.

Installation of the handrailings and guardrailings would have been easily installed by knowledgeable and experienced contractors without any difficulty or expense of which the unusual danger could have been remedied by the Property owner before allowing access to the second floor to third persons.

With the absence of the required stairway attached wall handrailings, open side of the stairway guardrailing and guard railing attached along the outside edge of the second floor landing areas is in violation of the City of Surrey building permit, building inspectors dated inspection of March 15th, 2017, British Columbia Building Code 2012 and/or National Building Code 2015 and specifically not having complied with the City of Surrey Building Bylaw, 2012, No 17850 of the following items;

Page 5

"occupancy permit"

means the permission or authorization in writing by the Building Official to occupy a building for the accepted occupancy.

Page 6

Part 2 - Purpose of this Bylaw

3. This Bylaw has been enacted for the purpose of regulating construction within the City in accordance with the Building Code and in the interest of the general public. The activities undertaken by or on behalf of the City pursuant to this **Bylaw are for the purpose of promoting the health, safety and protection of persons.**

Page 7

Part 4 - Prohibitions

9. No person shall occupy or use any building unless a valid and enduring occupancy permit has been issued by the Building Official for the building, nor shall any person occupy or use any building contrary to the terms of any occupancy permit issues or any notice given by the building Official.

Page 9

Part 6 - Required Permits

21. Every owner shall apply for and obtain;

(e) a permit and an occupancy permit to occupy a new or existing building, or part thereof, where a change of use is proposed.

Page 18

Part 16 - Occupancy Permits

73. No person shall use or occupy a building or part of a building until an occupancy permit has been issued.

74. The Building Official may issue an occupancy permit for a building, or part of a building, prior to completion of the building provided.

(a) the occupancy of the building or part of the building, would not jeopardize the lives, property or the health of any person.

**7.0. Addendums**

7.1. Attachment A: Excerpt from 2012 BC Building Code. HANDRAILS & GUARDS.

7.2. Attachment B: Typical Single-Family Residential Stair Detail. Sample Drawing.

Sincerely,

PACIFIC WEST HOME INSPECTIONS INC



Mr Dave Brice *CTech CHI RRFA-L CCI CMI WETT IAQI QAO*  
Owner/Inspector & Consultant



Pacific West Home Inspections Inc