

ONTARIO  
SUPERIOR COURT OF JUSTICE

**B E T W E E N:**

FRANCIS DANYLIW

Plaintiff

- and -

578693 ONTARIO LIMITED, C & R  
CONTRACTORS LIMITED and  
TURNPIKE MASONRY LIMITED

Defendants

)  
)  
)  
) *Ian H. Gold and Nadine Nasr* for the  
) plaintiff

)  
) *James M. Regan* for the defendant  
) Turnpike Masonry Limited

)  
)  
)  
) Heard: March 28, 30, 31 and  
) April 3 to 7, 2006

**BLENUS WRIGHT J.:**

[1] On April 3, 1999, a fire broke out in the plaintiff's residence at 45 North Drive in Etobicoke. The fire caused two million dollars damage.

[2] The plaintiff was insured with State Farm, which paid the claim, and this action is State Farm's subrogated right against the defendant Turnpike. The action has been dismissed against the other defendants.

[3] Turnpike was the contractor that constructed three fireplaces in the residence when the house was built in 1981. State Farm alleges that the fire was caused by Turnpike's negligent construction of the fireplace in the family room. The fireplace was on the south wall of the family room, which was in the southeast corner of the main floor. The other two fireplaces were never used.

[4] This trial will deal solely with the question of liability. The issues to be determined are:

1. Where did the fire originate?
2. What was the cause of the fire?
3. Was there a fireplace chimney fire on April 3, 1999?

4. Was Turnpike negligent in the construction of the fireplace?

**1. Where did the Fire Originate?**

[5] The parties agree that the area of origin of the fire was the southeast area of the house between the bedroom and bathroom on the second floor. This is where the most fire damage occurred other than the attic and roof of the house, which were almost totally destroyed by the fire.

[6] Initially, there was some confusion as to where the house was situated direction-wise because its location did not accurately fit a true north-south, east-west direction. For the purpose of the evidence it was agreed that the front of the house faced west.

[7] The dispute between the parties centres on the point of origin of the fire. The plaintiff alleges that the fire started in an area above the family room fireplace just below the floors of the southeast bedroom and bathroom, where the 2 x 10 trimmer joists and the 2 x 6 wall studs faced the brick chimney of the fireplace.

[8] Turnpike alleges that the fire started in the attic above the shower in the bathroom just west of the southeast bedroom. Turnpike alleges that the fire damage to the southeast bedroom and bathroom was the result of drop down fire from the attic. Drop down fire means, for example, that the wood framing in the attic was on fire and eventually fell through the ceilings of the bedroom and bathroom causing the fire damage to those rooms.

[9] The Fire Marshall's office investigated the fire. Chris Williams was the lead investigator. In his amended report signed June 19, 2000, he concluded:

Based upon the reports by engineers Ed Marinoff and Gord Yoshida, the cause of the fire will be amended from accidental to UNDETERMINED.

Neither the electrical wiring in the roof or the potential of a chimney fire can be ruled conclusively as the cause of the fire.

[10] In a previous undated report entitled "Preliminary Details of Occurrence", Williams commented:

The scene examination commenced at 07:50 hours on the morning of April 4, 1999. Burn patterns confirmed that the fire was confined within the attic, except for a few areas of drop down burning that occurred late in the fire. The point of origin was located in the attic along the south wall of the home. Arcing was observed to wiring throughout the attic and there was evidence that squirrels inhabited the attic. A dead squirrel fell to the ground during the suppression efforts.

Fire Evaluation Engineer Ed Marinoff attended the scene later in the morning. His findings were consistent with the fire having started in the attic as a result of an electrical failure, however further examination was necessary to rule-out the fireplace as a cause.

Of great consternation to the investigation is the fact that the chimney flue passes up the south wall, directly through the point of origin of the fire. In addition, when the interior walls were removed, the inside brick face of the fireplace was found to have numerous cracks in the mortar. Also, the second floor joist that was mounted flush against the south wall was removed and found to have an area of deep char corresponding to the location of the flue.

The possibility of a chimney fire is contradicted by the fact that the chimney was relatively clean, and the burning within the second floor wall cavity caused no arcing of wiring, including two duplex outlets in this area. This suggests that burning in this area was drop-down burning, and that arcing in the attic had already compromised the wiring in this area.

[11] In his July 14, 1999, report, Williams made the following observations:

A narrow area of burning up the south wall between the second floor southeast bedroom and the bathroom had burned the brick face clean. Fire debris had accumulated on the floor within the stud cavity. The burning within this second floor stud cavity caused no arcing of wiring to two duplex outlets in this area. This suggests the fire damage within the attic had already shorted-out the wiring in this area and that the burning at this point was drop-down and not related to the flue. Further examination was necessary to determine if the charred area on the joist corresponded to the location of the flue or if it was due to the accumulation of drop-down fire debris.

A circular area of burning was evident several feet above and to the left of the aforementioned second floor wall cavity. The wall stud in this area was completely consumed and the heat and flames spread up and to the right, into the wall cavity that led into the attic.

...

Of particular concern to this investigation was the evidence that the tie-in straps that secured the exterior brick wall to the interior wood frame of the house ran along the wall stud located directly in line with the fireplace flue. Any imperfections in the mortar would allow heat to be conducted through the metal strap to the wood frame.

Repeated heating could result in pyrolysis of the wood, which in turn could decrease the ignition temperature of the stud. A high temperature event, such as a chimney fire, could generate the necessary heat to ignite the wall stud.

The adjoining wall cavity, west of the aforementioned stud, would have provided a quick route to the attic where the fire would have rapidly spread to engulf the entire roof.

The evidence of rodent habitation in the attic can not be overlooked, however, the evidence of a chimney fire some time earlier on the occurrence date points to the chimney as being the most likely source of ignition for the fire.

[12] To determine the point of origin of the fire it will be necessary to link the point of origin of the fire with the cause of the fire. The plaintiff's point of origin of the fire above the fireplace just below the floors of the bedroom and bathroom fits with the plaintiff's allegation that the fire was caused by the faulty construction of the fireplace chimney.

[13] Turnpike's point of origin of the fire relies on an electrical failure above the shower in the attic.

[14] I find that there is far more evidence to support the plaintiff's theory of the point of origin of the fire, which was the wood framing next to the chimney above the fireplace.

[15] Margaret Danyliw, a friend of the plaintiff, but not related, was visiting the plaintiff on the afternoon of the fire. She left the house around 6:00 p.m. As she drove away she saw smoke where the roof and the chimney join. She returned to the house to warn the occupants of the smoke.

[16] Mr. Danyliw, the plaintiff's husband, (since deceased) went outside and observed the smoke. On his examination for discovery, Mr. Danyliw placed a "x" on a photograph, Exhibit 15, where he saw the smoke. The "x" is placed where the roof joins the brick of the family room chimney.

[17] The Danyliws' neighbour to the south observed the smoke from his rear deck. He indicated that the smoke came from the area where the bricks of the chimney meet the soffit.

[18] I find that at its earliest stage the fire seems to have originated in the family room chimney area.

[19] State Farm retained Rochon Engineering Incorporated to investigate the fire. James Bennett and Vince Rochon, both certified fire investigators, with vast experience in fire investigation, spent several days at the fire scene, co-authored five reports and testified at trial. I find that they conducted a thorough investigation and I accept their evidence as being more probable than the evidence of the other experts.

[20] Rochon broke open the wall area above the family room fireplace exposing the wood framing and the brick chimney. Rochon photograph 112 shows the area above the fireplace with the inside 2 x 10 trimmer joist with the floor joist on top and the sub-flooring for the bedroom and bathroom on the second floor. I note that there is very little evidence of charring on the inside trimmer joist.

[21] There were two trimmer joists, the inside one and the outside one next to the brick of the fireplace. A section of about four feet of the trimmer joists was cut out. Rochon photograph 113 shows the trimmer joists removed. At the top of the photograph is a hole in the sub-floor some distance out from the brick chimney. This hole was likely the result of drop down burning.

[22] The person in the photograph is pointing to the charring at the edge of the sub-flooring. Photograph 115 also shows the same charring to the sub-flooring.

[23] Photographs 117 and 118 show the charring on the outside trimmer joist after it was removed. The charring is where that 2 x 10 joist faced the bricks of the chimney.

[24] Photograph 119 shows the southwest corner of the second floor bedroom just above the family room fireplace. In the middle of the photograph is a clean burn pattern evidencing flames burning off the soot in that area. On the right side of the photograph between the studs are horizontal lines, which was the back wall of the shower in the bathroom. Directly to the south of the shower was a void space to the east of the bathroom closet. The void space corresponds to the clean burn pattern.

[25] Where the clean burn area is evident, Williams had removed at least two studs in that area. He noted that the charring on the studs was where the studs faced the brick chimney. I note that there is a stud next to the brick chimney to the right of the clean burn pattern. That stud appears to be more charred in the area where it faced the chimney.

[26] Turnpike's theory is: the fire damage in this photograph of the southwest corner of the bedroom was caused by drop down burning. I do not agree. There simply was not space between the outside trimmer joist and the bricks of the chimney for anything on fire to drop down and cause the considerable charring on that outside trimmer joist. If there was drop down burning which caused the charring of the outside trimmer joist; why is there no evidence of charring to the inside trimmer joist?

[27] The presence of the clean burn pattern in the void space just above the charred outside trimmer joist and the charring of the studs on the side facing the chimney, point to the area of the charred outside trimmer joist as being the point of origin of the fire.

[28] I suggest that the charring of the outside trimmer joist and the edge of the sub-flooring resulted from those areas smouldering for some time before there was sufficient oxygen for a flame to erupt. Once the flames began, the void area, which was open to the attic, became like a chimney flue and before long the flames produced the clean burn pattern right up to the attic setting off the whole attic area on fire.

[29] My suggestion accords with Williams' initial theory in his July 14, 1999, report where he stated:

The adjoining wall cavity, west of the aforementioned stud, would have provided a quick route to the attic where the fire would have rapidly spread to engulf the entire roof.

[30] Williams amended his determination of the cause of the fire to undetermined only when Ed Marinoff and Gord Yoshida, engineers with the Fire Marshall's office, did not rule out an electrical problem or the chimney as the cause of the fire.

[31] I find that the balance of probabilities favour the point of origin of the fire as being where the outside trimmer joist faced the brick chimney.

## **2. What was the Cause of the Fire?**

[32] As noted above, the final report of the fire Marshall's office concluded that the cause of the fire was undetermined.

[33] Turnpike called as expert witnesses Stephen Hawken of Arcon Engineering Consultants Limited and John Coull of Origin and Cause Incorporated. Both gentlemen concluded that the cause of the fire was undetermined.

[34] Neither gentleman had the opportunity to attend at the fire scene. They were retained long after the fire. Their testimonies were based on conjecture from reviewing reports and looking at the photographs. As a result of no firsthand knowledge of the origin and cause of the fire, I give their evidence no weight.

[35] Ed Marinoff, an electrical engineer, concluded the following in his report of July 22, 1999:

Considerable wiring damage was observed in the second floor southeast portion of the ceiling. Beading was observed to the damaged wiring. It is unknown as to whether the beading was caused by the fire or whether the observed beading resulted from a wiring failure.

[36] Rochon conducted a thorough investigation of the total house electrical system and disagreed with Marinoff's suggestion of beading. It was Rochon's conclusion that no wiring evidenced any beading and that any damage to wiring was the result of copper wiring melting as a result of the heat of the fire in a similar fashion as the copper plumbing melted. I accept Rochon's conclusions that the electrical system was not a cause of the fire.

[37] Turnpike's theory of an electrical failure was the result of squirrels chewing the insulation off the wiring. However, the occupants of the house never heard the presence of squirrels in the attic. Furthermore, there is no evidence that squirrels entered the attic area. There is evidence that squirrels nested in the soffit areas where there was no wiring. No evidence was presented as to how a fire could start by the actions of a squirrel. I find that this fire was not caused by any electrical failure.

[38] Gord Yoshida, in his July 6, 1999, report, concluded:

Based on this information, it is unlikely that there would have been sufficient time for a chimney fire to have resulted in a significant heat transfer to cause ignition of wood framing members adjacent to the chimney. This is based on the assumption of the ignition temperature of spruce to be 260°C.

[39] Mr. Yoshida does not discuss pyrolysis. His suggested ignition temperature of spruce at 260°C is when the spruce is new and without being subject to pyrolysis.

[40] Rochon's reports and evidence conclude that the fire was caused by pyrolysis due to the faulty construction of the fireplace chimney.

[41] The best definition of pyrolysis is contained at paragraph 18 in the case of *Itoria Construction Ltd. v. Peatson's Heating & Air Conditioning Ltd.*, [1998] O.J. No.5611 (Gen. Div.), which reads:

18 All the expert witnesses agreed that pyrolysis is a gradual and cumulative process whereby wood or other cellulose-like material has been thermally degraded by exposure to heat, either by conduction, convection, radiation or a combination of all three. The greater the heat or the more prolonged the exposure to heat, the faster the process will occur. It is important to understand that pyrolysis is not self-ignition, but rather one of the conditions that may lead to self-ignition. ...

[42] It is Rochon's opinion that the charred area of the outside 2 x 10 trimmer joist facing the chimney fireplace is the result of pyrolysis caused by the faulty construction of the fireplace chimney.

[43] The fireplace chimney was built of brick and masonry surrounding a 12 x 12 inch clay tile in lengths of 24 inches.

[44] The Building Code requires a half-inch space between the clay tile and the brick masonry with 6½ inches of solid masonry around the clay tile. If the half-inch space is not provided between the clay tile and the brick then the Code requires 7½ inches of solid masonry around the clay tile.

[45] In this case there was no half-inch spacing between the clay tile and the brick. The fireplace chimney had two faults in relation to this Code requirement. There was only 6½ inches instead of 7½ inches of masonry around the clay tile and some of the areas of masonry around the clay tiles were hollow instead of being solid masonry.

[46] The Building Code also specifies that a half-inch space must be left between the bricks and mortar around the clay tile and any combustible material.

[47] When Rochon removed the interior wall exposing the area above the fireplace there was no gap between the bricks and the combustible materials. Vince Rochon testified that the combustible materials were compressed right against the bricks of the chimney. I accept that evidence.

[48] Beginning with the brick chimney and going inward, the combustible materials consisted of: black tarpaper nailed on with a thin wood strapping by Turnpike; then a 1" insulated sheeting; and then the wood framing.

[49] The presence of the insulated sheeting would, according to the Ignition Handbook, increase the temperature of the combustible materials and, hence, the need for the half-inch gap between the heat source and the combustible materials. Page 715 of the Ignition Handbook reads in part:

Fires are sometimes encountered due to a non-obvious hazard created in a situation where a flue pipe was installed in a space that did not contain attic-floor or similar thermal insulation. If previously-empty space between the flue pipe and a nearby combustible member (floor joist, plywood, etc.) is subsequently filled with thermal insulation, the combustible member will become exposed to much higher temperatures than it would otherwise see. ...

[50] Turnpike attempted to show that the clay tile flue did not run vertically in the centre of the charred 2 x 10 trimmer joist. I accept Rochon's evidence that the clay flue liner sloped slightly to the west. I find that the clay flue line was in sufficient close proximity to the charred area for heat escaping the flue to cause the charring because of the lack of proper spacing.

[51] Because of the lack of proper spacing between the flue and the combustible materials and the lack of solid masonry between the flue and the combustible materials, it is difficult to measure the heat loss from the flue to the combustible materials and its dispersal into the combustible materials.

[52] There was some evidence that metal ties between the bricks and the wood studs may have played a part in conducting heat to the combustible material.

[53] The purpose of the 6" metal ties is to anchor the bricks to the interior wall. Three inches of a metal tie, at various intervals, is placed on the top of a brick before another brick is placed on top of the first brick and the metal tie is bent to form a 90° angle and then nailed into the wood studs. Knowing that metal is a conductor of heat, common sense would say that metal ties should not be used close to a heat source.

[54] I was not referred to any section of the Building Code dealing with metal ties near a heat source. I recommend that the persons in charge of developing the Building Code review the issue of metal ties near chimney flues.

[55] Rochon's last report, dated November 4, 2004, concludes:

In conclusion, our opinions with respect to the cause and origin of the fire that occurred at 45 North Drive, Etobicoke, Ontario remain unchanged. It is our opinion that a chimney fire occurred within the insured's chimney and increased the flue temperatures such that the combustible construction that was installed within inadequate clearances to the masonry chimney, dehydrated and

decomposed due to pyrolysis, lowering the ignition temperature of the combustible materials until a fire ensued.

[56] I agree with Rochon's conclusion and find that the fire was caused by the construction of the family room fireplace chimney, which did not comply with the requirements of the Building Code.

**3. Was there a Fireplace Chimney Fire on April 3, 1999?**

[57] In his examination for discovery, Mr. Danyliw said that he started a fire in the fireplace around 10:00 a.m. He went for a long walk around noon when the fire was still burning. He returned from his walk around 2:00 p.m. and the fire was out.

[58] Margaret Danyliw was visiting with Mrs. Danyliw in another part of the house. When she left around 6:00 p.m. she said that Mr. Danyliw was in the family room and that there was a fire in the fireplace.

[59] Howard Sheppard videotaped the inside of the fireplace flue on April 7 and 8. He attached a video camera to a brush and by adding lengths of rods pushed the video camera up the chimney and watched the pictures on a monitor.

[60] Mr. Sheppard's observations were:

1. Honeycomb soot/creosote 'puffy' in appearance was found in large quantities on lower 20' of chimney.
2. Mortar between some clay tile joints were missing.
3. Hair line cracks in some clay 12"x12" tiles.
4. There was no air space around clay tiles.

...

The 'puffy' appearance of the creosote indicates the chimney had a very recent chimney fire.

The chimney fire seemed to be contained to the lower half of the chimney.

[61] Williams, in his July 14, 1999, report commented:

... A camera was inserted into the fireplace in the den. It revealed significant creosote build-up on the walls of the flue.

The surface of the creosote inside the lower third of the flue was bubbled and flaking. This observation, combined with the presence of mottled clear spots on

the inside surface of the flue, were good indicators that there had been a recent chimney fire.

[62] Gord Yoshida, in his July 6, 1999, report stated:

Interior examination of the chimney flue by video camera showed that in the lower half there was an accumulation of burnt creosote on the flue interior walls up to approximately 0.25 inches in thickness. This would indicate that there had been a recent chimney fire, either the last time or second last time that the fireplace was used. It may also be possible that the creosote was ignited by a hot ember that may have fallen into the chimney during the fire occurrence.

[63] Both Mr. Bennett and Mr. Rochon testified that there was a chimney fire on April 3<sup>rd</sup> because of the amount of burnt creosote left on the inside of the clay flue.

[64] Turnpike called John Butler as a witness. He has spent his lifetime examining solid fuel burning appliances and inspecting and cleaning chimneys. He was absolutely certain that there was no chimney fire on April 3<sup>rd</sup>. He was not present during the videotaping and never attended at the scene. He viewed the video as I did. As the camera on the brush ascended and descended the flue there was, at some points, a lot of ash or creosote flaking off the sides of the flue like it was snowing.

[65] It was Butler's opinion that had there been a chimney fire, all of the sides of the flue would have been burned clean. However, in a paper by Jay W. Shelton, "Chimney Fire Experiments", the following observation is made at p.9:

In most of the chimney fires, the creosote was substantially removed, on a weight basis (Table 2) – typically over 90 percent. However, a significant volume of ash or ash-plus-char remained in the flue – its volume was typically larger than that of the original deposit. Much of the material was still adhering to the flue wall, but some had fallen off. The flues were thus not clear. However, brushing very easily removed the residue (Figure 9).

[66] Butler also stated that the sound of a chimney fire would be like a locomotive coming through the room or a 747 overhead. Mr. Danyliw heard nothing like a chimney fire but he went for a long walk and left the fire burning. Mrs. Danyliw did not hear anything unusual but she was in another part of this large house.

[67] Mr. Rochon testified that he had investigated many fires where there had been a chimney fire and the people in the house did not know that a chimney fire had occurred and had not heard any noise.

[68] Chimney fires can be of various extents and durations. If, as Mr. Sheppard notes in his report that the chimney fire seemed to be contained to the lower half of the chimney, it would mean that the area of the hottest heat from the flue would be at the level of the charred trimmer joist.

[69] Even if there was no chimney fire, there was a fire in the fireplace for an extended period of time. As Vince Rochon stated, on the theory of pyrolysis and the Building Code violations, a fire could have happened at any time.

[70] The weight of the evidence supports a probability that on April 3, 1999, there was a chimney fire.

**4. Was Turnpike Negligent in the Construction of the Fireplace?**

[71] Turnpike owed the plaintiff a duty of care to construct the fireplace chimney so that it would be safe to use.

[72] The Building Code's purpose is to provide minimum standards for construction so that owners of houses will be safe from poorly constructed houses. The standard of care is the Building Code requirements.

[73] It was foreseeable that if the Building Code requirements were not met, the plaintiff would suffer harm.

[74] I find that Turnpike did not construct the fireplace chimney in accordance with the Building Code. Turnpike was negligent and that negligence caused the fire. Turnpike is liable for the damages resulting from the fire.

[75] If counsel are unable to agree on the amount of costs to be paid to the plaintiff, the parties may provide written submissions within 30 days.

---

Blenus Wright J.

CC

COURT FILE NO.: 00-CV-189861  
DATE: 20060425

ONTARIO  
SUPERIOR COURT OF JUSTICE

**B E T W E E N:**

FRANCIS DANYLIW

Plaintiff

- and -

578693 ONTARIO LIMITED, C & R  
CONTRACTORS LIMITED and TURNPIKE  
MASONRY LIMITED

Defendants

**REASONS FOR JUDGMENT**

**BLENUS WRIGHT J.**

Released: April 25, 2006