

**ONTARIO COURT OF JUSTICE (GENERAL DIVISION)**

**RE: AMAPOLA HOMES LIMITED, JESUS NAVAZO and PAMELA BOYD**

**and**

**PDV CONTRACTING LIMITED, RAFAEL VARELA, JOSE PEREZ,  
JOSE DORADO and ONTARIO HYDRO**

**BEFORE: COO J.**

**COUNSEL: PETER TREBUSS**  
**for the PLAINTIFFS**  
**(FAX 360-8877)**

**MARY ANN ALDRED and BRADLEY  
GOTKIN**  
**for the DEFENDANT ONTARIO HYDRO**  
**(FAX 444-0761)**

**Heard: September 21-25, 1998**

**ENDORSEMENT**

[1] This is an action, now maintained against PDV Contracting Limited, which does not now defend, and against Ontario Hydro, for damages for negligent installation of electric wiring by PDV and breach of an alleged obligation cast upon Hydro to inspect and have corrected the home wiring system. There was a fire at the plaintiffs' residential premises which they allege has been demonstrated to have occurred in consequence of the improper installation of wiring in the building in such a way as to result in staples affixing more than one electric cable to a beam, pinching the cable, leading to a high resistance fault, which in its turn led to arcing, or more likely arc-tracking and a fire at the point of origin of the fire, alleged to be below the first floor flooring, above the basement gypsum ceiling and on the west side of a major structural beam.

[2] The defendant does not rely on the provisions of section 111(10) of the Ontario Hydro Act to relieve it of any legal burden. It does take the position that it has not been established on the balance of probabilities that failure on its part to inspect made any contribution to the plaintiffs' loss, or that the loss occurred as or at the point of origin theorized by the plaintiffs' witnesses.

[3] It has been agreed that the action is to be dismissed against the personal defendants, without costs and related crossclaims should be dismissed without costs.

[4] The damages have been agreed upon at the sum of \$459,000.00, including pre-judgment interest.

[5] There has been a good deal of conflicting testimony, including a video display as to the circumstances in which wiring faults can be triggered with consequent fire.

[6] Vincent Rochon, one of the plaintiffs' main witnesses is a credible and experienced fire investigator who has investigated over a thousand fires. He is a graduate electrical engineer with training and much experience in the Fire Marshall's office. He expressed it as his opinion that the fire started on the west side of a main structural beam supporting joists which in their turn supported the first level flooring and that there was a channel fire, enclosed by joists at each side, by the basement gypsum ceiling below, and by the plywood base and hardwood flooring at the first floor level. It is put that the fire ultimately ran under the east-west first floor hall, heat-energizing itself at the east end of the hall under the east entrance to the house, when it was blocked by the east wall of the building. Mr. Rochon gave detailed, logical and supported bases for his conclusions, which, it was almost but not quite conceded, involved an unusual (and hard to replicate experimentally) set of circumstances. Several photographs made exhibits support his thesis.

[7] His opinion is that what happened was that, in installing the wiring in the basement of the home and anchoring conductors to the beam, more than one of the following things happened or were done:

staples were used that ought not to have been used, by reason of the application to this situation of the combined provisions of the National Electrical Code, the Provincial Code and the operation and proper interpretation of figure 24 of the latter at page 92 ,

two and probably three cables were attached using a single staple or a series of staples, this conclusion based on the pattern of stapling to be found in the wiring of the house from the box or boxes towards the site of the fire,

conductors were stapled 'on edge' and not flat, this conclusion also based on the just-mentioned pattern found established earlier on the line,

a staple crushed, squeezed or cut into the cable, causing insulation to be removed and copper wire to be exposed so that it could come very close to other exposed copper wire, with the surrounding conditions, including moisture, dust and the like, producing the required link or bridge to generate a relatively high resistance fault, producing an arc-tracking failure when there was sufficient charring of insulation or other materials to maintain the bridge required for continuity of arc-tracking, with long-term buildup of intense heat,

this heat, generated in an enclosed space, was sufficient to cause combustion of the wood

of the beam to which the wiring was stapled.

[8] His view is that the failure of the defendant Hydro to detect and refuse to pass the flawed installation led to the fire.

[9] He is firmly of the view that the fire did not burn down from the first floor level to incendiate the underlying structural beam, but rather the fire, in natural progression moved up through the building from the support beams to the first floor structure, then doing damage to the first floor level and so on upwards.

[10] He said that there was nothing else that could have caused the fire. He conceded that there was no way to know whether the circuit breaker tripped prior to the conflagration actually starting, presumably shutting off the circuit in which he says the fire had its origin. He conceded that he found no wiring that remained intact after the fire in which there were actual signs of the sort of damage caused by inappropriate stapling of which he complains. He conceded that arcing can cause a fire or be caused by a fire and that the required ignition energy, as to which no specifics were given by anyone in the evidence, would at least likely be much higher for a wood beam than for materials such as paper, or the blankets seen in the video demonstration made an exhibit at the trial. He made it clear that he quarreled with the analyses contained in the 1995 edition of the NFPA standards at least on the subjects of analysis of short circuits and damage from arcing, in which general connection he made certain references to the 1998 version of the treatise in some related aspects.

[11] His conclusion as to cause was to a real degree supported objectively by what was found after the fire, although it is important to recognize the limited legitimate use of that evidence in coming to a conclusion.

[12] Based on his experience, he felt that ordinarily if the Hydro inspector in the course of his routine duties saw a job that seemed generally to be properly done, the job would probably pass and, there being perhaps 200-300 staples in a job such as that with which we are concerned here, any other or more detailed form of inspection would simply not be carried out. He made the point that if an inspector saw more than one cable on end, affixed by one staple, or both, as is to be seen in Exhibit 1/1/F10103, he would not, or certainly should not, pass the work.

[13] Mr. Hiscott, a Fire Marshall's investigator of over 8 years experience, who was a member of the Toronto Police Department for about 18 years before that, was called to the scene in the early morning hours of May 1, 1989, by the Fire Department that had to deal with the fire. He examined the site, took photos and made careful observations of the scene. He obtained advice from engineering experts on the subjects of possible involvement of a propane tank he found at the scene under an outside deck at a doorway of the house, faulty electrical wiring in the area of the structural beam referred to by others in their testimony, and the possible presence of an accelerant as the cause of the fire.

[14] He was given advice to the effect that the propane tank was a "victim" of the fire, not its cause. He was told that there were no signs in samples collected at the scene of the presence of any accelerant. He accepted the reliability of these judgments but remained at least modestly uncertain about the propane tank in light of having been told by an occupant of the house that he or she knew nothing about such a tank.

[15] Mr Hiscott is certain that the area of origin of the fire was the structural beam, although he at the end expressed himself as at least lacking in complete certainty as to the side of the beam that was the actual point of origin. He did not think that the fire started on the first level floor and burned down, giving sensible and consistent reasons for that conclusion, which I find reliable.

[16] As for the cause of the fire at the point of origin, he remained unwilling to express himself with certainty.

[17] John Coull, a fire investigation expert of many years experience with the Fire Marshall's office and in private practice, first saw the fire site on May 8, 1991. He was taken through the building by Mr. Hiscott. Mr Coull's opinion is essentially the same as that of Mr. Rochon as to the point of origin of the fire. He described it as a channel fire that originated at the support beam under the floor joists of the first floor, that ran down the space between joists, below the flooring and above the basement ceiling, generated great heat at the east side of the building where the structure blocked its path and generated less concentrated heat in a westerly direction from the point of origin since it could and did escape upwards as far as the third floor through ducts or conduits not available at the east end of the channel. It seemed to be his view that there was no other logical cause for the fire except for a wiring fault in and about the point of origin, since there was no other cause there, although he has never himself had occasion to investigate a fire allegedly caused by an improperly used cable staple. He has had experience with crimped or trapped wiring as causes of fires.

[18] He was firmly of the view that the fire did not start on the floor of the first floor, for reasons detailed by him and supported by photos to which he was referred. In essence it was his view that the pattern of damage was entirely inconsistent with such an area as the point of origin. He put it that everything he saw brought him back to one side of the structural beam as the point of origin of what started out as a smouldering and buildup of great heat in a confined space, a heat that backed up on itself as it grew in intensity over time.

[19] Mr. Tim Hill, an electrician with 26 years of experience in the trade, said that it is not unusual to have more than one electric cable under a staple. He indicated that staple size had been developed when cables were larger than is now the case. He made the point that a problem arose if there was pressure on cable in consequence of how deep the staple was sunk, how much cable was enclosed by the staple and whether the cable or cables were improperly affixed on edge, something unacceptable in the trade and against Electric Code provisions. He said that if there was pressure and the cable insulation was damaged, there was created a risk of something going wrong, although the design of circuit breakers would ordinarily take care of that.

[20] A Captain with the Toronto Fire Department, erstwhile with the North York Service, gave evidence that he was despatched to fight the fire, went to the east door and noted that trim around the door had burning embers. A short time latter he was present when the door had been opened. He saw a fire through the separations beneath the first floor wood floor strips, some at least of which were at that stage burning embers, with the fire making its way up from underneath the floor. It was his judgment, from the short distance of perhaps 8-10 feet that he could see in a westerly direction down the hall, that about 80 percent of the flooring was still there.

[21] Mrs. Boyd, the wife and mother in the family that occupied the home at the time of the fire in circumstances described that were at least unusual, was able to contribute nothing material. Her husband was too ill to be called as a witness and counsel agreed that parts of his discovery would be put into evidence on consent. Those excerpts are of no great assistance in coming to any conclusion on any relevant issue.

[22] Fairness requires it to be recorded that there is no suggestion from Hydro, whether in its pleading or otherwise, that there was arson.

[23] For the defence Dr. Bernard Béland, a well-qualified electrical engineer with considerable experience in the investigation of alleged electrically-caused fires, was called. He quarrelled with the legitimacy and reliability of some conclusions expressed by the plaintiffs' experts.

[24] As to the point of origin of the fire, without in any way meaning to over-simplify his view, he theorized that the fire, on all the evidence, probably started somewhere on top of the first floor level flooring, and not beneath it. He said that the nature of the damage revealed in the photos did not support the idea that there was a channel fire between joists supported by the structural beam manifestly badly damaged in the fire. He conceded that he had not been to the scene of the fire at any time, but he did see photos and read reports. He concluded that since

there was major burning in the area of the structural beam and at the east door, with much less damage in between and to the west in the plaintiffs' 'channel' of conflagration,

he disagreed with the plaintiffs' expert that there would be a backup and buildup of heat at the east end of the channel, which would not take place at the west end,

there was some real fire damage on the first floor, in places at the top of a wall and not just on the floor,

there was not as much charring on the west side of the beam as he would have thought likely had the fire started there

and for other reasons reviewed by him at some length,

the fire did not start where the plaintiffs allege. He was quite prepared to concede that photos showed that there had been at least one or one group of conductors located against the west side of the structural beam, since there was a line on the charred wood as clear evidence of that fact. He drew the inference from the continuity of the mark that the wire was there long after the fire had started, and that fact ought to be considered as evidence that the fire started elsewhere. He was also prepared to concede that there may have been found a hole likely made by a staple in the very area of significant fire and damage. In regard to the point of origin he also, of course, relied on his view as to the likelihood of anything at the plaintiffs' chosen site causing ignition of the fire. It was his view that the plaintiffs' theories are no more than that — just theories, without scientific or logical support in how electric fires start or spread.

[25] His opinion is that while perhaps nothing is beyond rational possibility, it was unlikely that

anything done to conductors by stapling would have produced the result that there was created an abrasion, cutting, stripping or other major damage to the insulation

any such damage that produced a short circuit, or arcing (something that would require very high temperature), would be rescued from further consequences by the operation of an existing breaker or fuse,

there could not likely have been generated sufficient heat to cause any ignition of anything possibly adjacent,

even if there had been arc-tracking, that is the transfer of electricity through a bridge, however formed by materials in the atmosphere or close at hand, leading to unlikely charring of the PVC insulation encasing the wire or wires (a material that has heat resistant, self-extinguishing and flexible qualities), any long-lasting but intermittent tracking, even were it not to have been interrupted by operation of a fuse or breaker because the flow-through was too low to trigger that safety mechanism, would not likely be enough to generate sufficient heat to set a large wooden support beam on fire, however long it might have continued to smoulder against the beam, and however much heat would in fact be required before the arc-tracking could start and be maintained, given that the insulation could function at 100 degrees centigrade for a very long time.

[26] He made the point that he could not say what had caused the fire, but was prepared to declare what he felt was quite unlikely to have done so. He went on to make the point again and again that there were, in the mix of information available to him, all kinds of contradictory evidence and a number of puzzling factors that made firm conclusions about the point of origin of the fire (and I gather its cause) difficult to reach and replete with doubts.

[27] He conceded at once that it was important, for functional and safety reasons, to take great care to ensure that the integrity of the conductors, and in particular the integrity of the insulation, be maintained. He emphasized that once such an installation was completed one could not

examine it to check on it or monitor it. He did go on to make the general point, in a way that he obviously did not think contradictory, that it was very unlikely that almost whatever was done wrongly in the course of installation would cause a fire or any major problem of any kind, unlike the situation that might exist in an industrial milieu, where power levels and safety measure requirements were pegged at very much higher levels in potentially more dangerous circumstances.

[28] Mr. Stewart, the Senior Hydro Inspector who was responsible for passing the wiring at the site of the fire, spoke on the basis of his established practice, but not from memory of this particular job. He said it was not his understanding that there was any Electrical Code requirement that not more than one cable be affixed under one staple in a home installation, although he did concede that there might be more, and as many as three, only if the staple were the right size, it being clear on the evidence that there were and are different enclosed space dimensions to certain staples.

[29] He indicated that had he noticed, on what was probably a 20 minute building inspection, compression of cable or any stapling of cable 'on edge' he would have refused to pass the job, since either would be contrary to Code requirements. He is sure there was no special permission sought or given under provision 2-030 of the Code to depart from Code standards. He made the point that an inspection ordinarily would not involve an inspection of every one of perhaps 200 staples at a typical home site, but that, at the same time, an inspection does include following the entire length of wiring for several purposes, two of which, absence of improper splicing and observation of all possible places where there might be cable damage, require it.

[30] He said that one of the factors in the inspection was to see to it that the cables are supported, but that they can move within the staple supports. He further made the point that in the first few minutes an inspector is inclined to size up the job as one well done or otherwise and this preliminary assessment, together with past experience with the particular contractor, would set the tone for the rest of the examination. In this context he indicated that it was his routine practice to start on the main floor, then go to the second floor and end up in the basement, so that whatever preliminary impression he had very probably was not generated from whatever he saw or should have noticed in the basement, his last stop. He acknowledged that the whole purpose of an inspection is to make sure all Code requirements are met and there are no hazards, of electrical fire or otherwise, in the wiring. There was a simple procedure in place to bring to the attention of an electrical contractor any formal Defect found on inspection that did not involve undue burden on an inspector.

[31] Mr. Roy Hicks, a very senior and knowledgeable Hydro engineer with many years experience in writing and interpreting Electrical Codes and seeing to it they are followed, took the court through several statutory, regulatory and standards provisions that apply in this case. There is no need simply to repeat the review he provided as to how to find one's way through the various relevant materials, and how the National Electrical Code, with imported National Safety Code provisions and Provincial Supplements, provided the requirements for electrical

installations in this province.

[32] He said that an inspection is to ensure that Code requirements have been met. He said there was no specific Code provision that there be no more than one cable under a typical 14-2 size staple, and in this context said that many contractors and inspectors are not familiar with the specifications for staples to be found at page 92, diagram 24, for such staples. The argument is obviously available that the dimensional requirements of that diagram would perhaps be of little meaning if it was intended that there could be more than one cable under any one staple. He made the point that if a cable was affixed 'on edge' it would be a Code violation, as would there be a violation if there was damage or presumably risk of damage to cabling as a result of the stapling method used. He seemed to suggest that an inspector could deviate from Code requirements, but the circumstances in which this could be done are to be found in provision 2-030 of the provincial Supplement, which is very limited in its reach, and has in fact no application here. He conceded that there had been for some time conflicting rulings by inspectors with regard to there being more than one cable under a single staple and this situation has been corrected in 1996, not by any amendment to the Code, but simply by a publication and education of both inspectors and contractors to the effect that the interpretation thenceforward to be followed was that only one cable should be affixed by any one staple and there should be no bundling under a single staple. In general support of what Mr. Stewart had to say on the subject, Mr. Hicks indicated that inspectors use a sixth sense about installations and act on an impression as to whether they are looking at a job of quality, relying in part on their previous experience with the same contractor. There was no suggestion that any reputation for good workmanship stood the co-defendant in good stead here or was in any way being relied upon by Hydro, at the time of inspection or now.

[33] I am entirely satisfied from all of the evidence, taking into account the opposite view expressed by Mr. Béland, that it has been established that the fire originated at the place described by Mr. Rochon. The physical evidence, including the photos, and the observations made at the scene at the time of the fire and later, all drive me, without reservation, to that conclusion.

[34] The much more difficult question to answer, is whether, especially in the light of Mr. Béland's views on the issue, not of possibility, but practical likelihood, it has been demonstrated on the balance of probabilities (because the evidence certainly does not go beyond that, however one might view and weigh it) the cause of the fire was that which has been described in the plaintiffs' evidence. On this issue, there is very much less certainty in my mind.

[35] I recognize that since I have found that the fire occurred at the point of origin described by Mr. Rochon, it is at least attractive simply to conclude that the only thing at that place in the home that had any capacity to cause the fire was wiring, and that, seemingly on everyone's view, it could not cause a fire if it were properly installed, however unlikely it might be that, even with failure to follow proper steps, a fire would eventuate. And there was a fire. However, it is very important to recognize the danger in dealing with the matter in that way. The plaintiffs have an

affirmative burden to establish the cause of the fire with a particularity that brings home to the defendant PDV responsibility for failing to install the wiring in the sort of way complained of, a way that ought reasonably to have been observed and rejected by a Hydro inspector.

[36] I have decided that it has been established, on the balance of probabilities, that the cause of the fire lay in the negligent and careless failure by the electrician who did the work, the defendant Dorado, an employee of PDV, properly to staple electric wiring at this site by improperly clustering a series of wires and squeezing those wires too tightly in hammering a staple or staples into the joist, stapling the wiring too tightly and on edge, as was done elsewhere at the home, piercing the cable with a prong of a staple, or a combination, impossible now to determine, of these alternatives. Even if there was not the clustering to which I have made reference, there was, on the balance of probabilities, the crushing, squeezing or mechanical damage that led to the wire breakdown, failure and fire.

[37] I have been persuaded that the evidence of Mr. Rochon, measured with all the other evidentiary material and testimony, and bearing in mind the opposing position expressed with vigour by the defence evidence, is to be accepted as reliable. I found his testimony more objective and consistent than that opposing it, and have determined that while conclusions on some factors do not drive one to any particular conclusion on others, there is in the plaintiffs' case a fundamental, consistent and practical logic.

[38] I have further concluded that there was a failure on the part of the Hydro inspector to take reasonable care in the inspection process, as a result of which the installation was approved. Corrections should have been ordered and were not. Had they been ordered and done, the ultimate source and cause of the fire would have been easily eliminated.

[39] Hydro failed in a fundamental way in an inspection responsibility assumed by it in circumstances where it was clear that failure to carry out that responsibility might very well cause damage to the plaintiffs, members of the group for whose protection the duty was created and assumed. This finding does not involve the imposition on an organization such as Hydro of any undue, impractical or unrealistic burden. The patent problem which led to the fire was readily observable as part of routine and obligatory inspection.

[40] On the basis of these findings there will be judgment against both PDV and Hydro for the agreed upon damages, plus costs.

October 8, 1998



Douglas Coe J.