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The dark side of engineering

BY JOANNE ROSEN

Contributor

Geoff Evans, M.Sc, P.Eng, looks at the dark side. A forensic engineer, instead of making things that work right, he investigates why something goes wrong, often to provide evidence in legal actions.

"I took all the years of education and experience in the field," Nanaimo-based Evans told the Business Examiner, "and started to



INVESTIGATOR EVANS

Asking what went wrong.

use them to recreate accidents to find out what happened and why."

His education encompasses two Masters degrees, and the first part of a PhD, which was interrupted by a lot of time in various schools of hard knocks. He spent 14 years working in Canada's frozen North, with a few side trips into Alaska, within the oil and gas sector, as well as in diamond mines.

He spent four years working with the reigning queen of the tiny African territory of Swaziland, changing the prime minister's picture on his wall every time there was a coup, sometimes with a machine gun pointed at him.

While life is a bit less dangerous in Nanaimo, the hectic pace has not diminished for Evans. Being the only forensic engineer on Vancouver Island, every day brings him a new case with a different set of circumstances.

"I recently investigated a crack in a foundation wall of a house," he said. "The crack formed when chipping excavation was being done on the property next door."

Evans had to confirm that the crack was new, not one that had been there before.

He verified the direction the wall faced, and then determined that if the crack had been made anytime before March, the prevailing winds would have blown specific debris into the crack or the powdery residue from the movement would be gone.

"What I do is marry science and facts and get the results," he said. "It's a lot like CSI Miami but instead we are the ASI Nanaimo: Accident Scene Investigators."

Investigators like Evans are needed more frequently now, as police no longer have the technology to determine motor vehicle accident causes because the evidence has changed.

"ABS (Anti-lock Braking Systems) have made skid marks a thing of the past," he said. "So now we do crush energy absorption testing by measuring the impact on the car, comparing it to the specifications from the manufacturers testing, and inputting all the data into a computer program that will verify the speed upon impact."

Spending time testifying in court is just part of the package since Evans qualified as an expert witness in the B.C. Supreme Court. Most of the time in civil court, the plaintiff in a lawsuit hires him to prove negligence on the part of the defendant.

"It's a difficult situation," said Evans, "when there is a mom with three little kids whose husband has been killed. I have to remain completely impartial and unemotional and let the facts speak for themselves."

In one case, he traveled to harbours all over Vancouver

Island, looking for an example of where a rubber strip was used to cover the surface of two separate docks that had been joined together.

"By the time I was brought into the case," he said, referring to an accident where the rubber had flipped up from the wake of a passing boat and tripped a pedestrian, "the surface had been changed. I needed to find one similar so that I could prove how it happened."

So many details factor into forensic engineering that experience plays a huge role. Having lived in extremes of climate, Evans knows exactly how asphalt reacts to -40C and +40C. But, for those times when the information isn't already in his knowledge base, he turns to the Internet.

"I research everything on the Internet," Evans said. "But I make sure I'm using reliable sources."

An important distinction, Evans cautioned: so much of what is on the net is unreliable. Using peer-reviewed or official sites is vital.

Evans' work extends well beyond the courts: every summer Evans plays a vital role in keeping the beaches safe. Since 1995, when the City of Nanaimo began its due diligence along her waterfront, Evans has tested the water on a weekly basis for fecal matter.

"Most of the time, the water is in excellent condition," he said. "But some of the worst fecal counts are found after smaller watercraft empty their raw sewage directly into the water."

With summer just around the corner, testing has begun. **BE**



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