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1986–9: The first years of Rod Caughill’s employment by Algocen

Rod Caughill learns of the leaks soon after being hired

Rod Caughill joined Algocen on January 26, 1986, as construction superintendent. At the time of his testimony, he was still with the company (today called Algoma Central Properties Inc.) in the position of development supervisor.¹ Before joining Algocen, Mr. Caughill had worked for 16 years in general construction, ending up with a focus on air-leakage control, caulking, and air-penetration issues.² He was a key player with Algocen during its ownership of the Mall and an important witness, given his familiarity with repairs made to the roof and Algocen’s overall approach to the problem.

Elliot Lake’s population had peaked at about 20,000 in 1980 and was starting to decline by 1985, as a result of a negative trend in the area’s mining industry. George Farkouh, a councillor at the time and later mayor, said that employment was “steady and declining slightly,” but he felt the commercial vibrancy of the community was “reasonable” in 1985. The arrival and departure of residents was neutral, but in terms of the community’s future “you started to see the decline very slowly.”³

Mr. Caughill replaced Ward Pinnell, but the two worked together for about three months before the latter’s departure.⁴ From the start of his employment with Algocen until the sale of the Mall to Retirement Living, Mr. Caughill generally reported to Robert Leistner (the Mall’s general manager and later its vice-president) on matters related to the Mall.⁵

When Mr. Caughill first started with the company, Jim Willey was the general manager for the Algo Centre. Larry Liautaud took over that position in late 1987 or early 1988. Messrs. Pinnell, Willey, and Liautaud have all died.⁶ Initially, Mr. Caughill’s involvement with the Algo Centre was limited. Day-to-day affairs were the responsibility of the general manager for the Algo Centre (Mr. Willey, followed by Mr. Liautaud). However, from the time he started working for Algocen, Mr. Caughill was aware that the Mall had leakage problems which the company needed to get under control. At the time, Algocen’s vice-president, Nicholas Hirt, was concerned about the leaks from a tenant perspective. As Mr. Caughill testified, “[It] was certainly an inconvenience to every tenant we had. And he was frustrated.”⁷ Mr. Caughill learned sometime during his internship that the roof had been leaking for approximately seven years before his arrival. During those years, Mr. Caughill went to the Mall at least once a month and observed that the Mall’s roof leaked.⁸

Mr. Caughill is asked to look for solutions

Eventually, Mr. Caughill was asked by management at Algocen to “think outside the box and start looking for some solutions” to what was at the time an ongoing and unresolved problem.⁹ He therefore set out to tackle the problem and read different materials as part of that process, including the Harry S. Peterson (HSP) waterproof system proposal and a trade journal article in *Canadian Building* magazine, discussed in the previous chapter.¹⁰

The corporate knowledge relating to the HSP system did not appear to have been handed down from one employee to the next. The result was that Mr. Caughill had to do some “digging” before he was able to figure out the various components that made up the waterproofing system installed at the Mall.¹¹ Mr. Caughill testified that, over the years, by working on the roof and cutting down below the poured concrete, he was able to determine that a strip of sealant had been placed in the grout keys between the hollow core slabs, as shown in a change

detail.¹² In contrast, the original design called for a strip membrane to slightly span those grout keys.¹³ He also learned from the original documents that the sealants on the roof had a lifespan of approximately 10 years and were “an on-going maintenance issue.”¹⁴ During his attempts to gain an understanding of the waterproofing system, Mr. Caughill did not contact HSP’s David Monroe, who was involved in managing the installation process, although he believed that at some point in time either Mr. Willey or Mr. Liautaud may have contacted him.¹⁵

Mr. Caughill recalled that, when he started with the company, the Mall’s parking lot had two barriers already in place to keep heavy trucks off the roof, one at the south ramp and the other at the north ramp.

Mr. Caughill recalled that, when he started with the company, the Mall’s parking lot had two barriers already in place to keep heavy trucks off the roof, one at the south ramp and the other at the north ramp. The barriers were horizontal, located at the bottom of the ramps, approximately 7 feet high, and designed to pivot on one end so that they could open if necessary. The design was meant to allow only cars and light trucks access to the roof. If necessary, with a little effort, the barrier could be swung open to allow, for example, an ambulance to get by.¹⁶

Mr. Caughill was aware that cars used the roof as a shortcut. The cars would come up the north ramp, navigate around parked cars, and head back down the south ramp.¹⁷ He did not himself observe speeding traffic, and heard no

such reports. However, he did hear cars at night on the roof moving “a little faster than they should have been.” He didn’t notice that the traffic above caused vibrations, but he did notice that it would hit the catch basins (metal grates of the drains), and the noise would echo through the Mall structure.¹⁸ He described certain traffic control measures taken on the roof in an attempt to change the pattern of traffic by putting barriers and cords and speed bumps in front of the ramps at both ends.¹⁹

Mr. Caughill’s recollection of snow removal was that the contractors were allowed to use a three-quarter-ton truck with a front-mounted blade on the roof, but they also used a small backhoe-type machine to get snow out of the corners and push it on to the ramps. Mr. Caughill suggested that the backhoe machine would have been only marginally heavier than the pickup with the blade.²⁰

1987: Algocen develops a maintenance routine that includes daily checks for loose caulking and water-damaged tiles

At the expiry of the HSP warranty, Mall management put in place a maintenance routine for the parking level. A document prepared in August 1987 by Mr. Willey, Project Maintenance Schedule – Algo Centre, contained a set of maintenance, cleaning, and repair instructions for the Mall as a whole, but also specifically for the rooftop parking lot. It included directions for daily checks to ensure that the rooftop barriers were closed. In May, the catch basins were to be cleaned of sand. In the spring, joints were to be repaired, if not done already, and staff were to “finish sealing remainder of parking deck.” In the summer, staff were to check and, if necessary, caulk all rooftop joints, vents, and drains. All potholes and cracks on the roof were to be filled.²¹

Mr. Caughill confirmed that the Mall maintenance staff had a list of tasks of this nature, which was modified as the use of the building changed. His recollection, though, was that the staff were expected to patrol the roof daily, looking for any area where the caulking may have torn loose and patch it immediately. Up until Algocen sold the building, this patching was something that needed to get done; otherwise, the leaks “would just get out of hand.”²²

The same maintenance schedule contained a daily direction to “[r]eplace tile when damaged by water.”²³ Mr. Caughill said this was a reference to ceiling tiles and that it was not out of the ordinary to have to do this job.²⁴

1988–9: The Library moves to the Mall, despite warnings about leaks

In 1989, the Elliot Lake Public Library became a tenant of the Algo Mall. Over the years, the Library would become one of the major trouble spots for leaks at the Mall. The Library, of course, was an important municipal institution; its perennial difficulties with leakage ought to have been a major concern.

The Commission heard evidence from two individuals about the decision in 1989 to move the Library from its former location to the Algo Mall. The first witness was Barbara Fazekas, the chief librarian. Ms. Fazekas moved to Elliot Lake in 1979 and initially worked at the high school library. She was then hired in March 1981 as the chief librarian for the Elliot Lake Public Library. She took some time off from 1983 to 1988 to have a family, then returned as chief librarian in July 1988. She continued in this role until June 2006.²⁵

The second witness who spoke about the decision to move the Library to the Mall was George Farkouh. Mr. Farkouh was a councillor for the Town of Elliot Lake from 1985 to 1988. In 1988 he was elected mayor, a position he would hold for 18 years.²⁶ Mr. Farkouh was a long-time resident of Elliot Lake. His family came to Elliot Lake as Palestinian refugees when he was 12, and he attended elementary and secondary school there. He left Elliot Lake to obtain his undergraduate degree, a graduate degree in commerce, and an MBA, all from the University of Western Ontario.²⁷ He returned to Elliot Lake and, at various times, operated several businesses and taught at Sault College in Elliot Lake.²⁸

As chief librarian, Ms. Fazekas acted as secretary and treasurer on the Library board.²⁹ Library boards in Ontario operate independently from the municipalities in which they are located. The *Public Libraries Act* states that the council of a municipality may establish a public library by by-law, and that the library “shall be under the management and control of a board, which is a corporation.”³⁰ Council appoints a library’s board members. In Elliot Lake, because of the size of the Library, the municipality handles the accounting and personnel functions. In addition, the employees of the Library were treated as Town or City employees subject to the municipality’s human resources policies.³¹ (The Town of Elliot Lake became the City of Elliot Lake in 1990.)

A representative of council sat on the Library board,³² and councillors who sat on the board at various times included Rosario Capillo, John Gale, Troy Speck (when he was deputy mayor), Ralph Primeau, and Cathy McTaggart.³³ Mr. Farkouh was on the board from December 1985 until late 1988.³⁴

Ms. Fazekas explained that regular monthly board meetings were held from September to June. The Library board’s council representative usually attended these meetings; the other councillors made a point of attending the budget meetings.³⁵

The Library’s funding came mostly from the municipality.³⁶ Its budget was set through a process that involved the submission of budget sheets to the town or City treasurer, who put the budget together for presentation to council. The amounts dedicated to each line item could change, so long as overall the Library came in at or under budget. The biggest expense was for salaries.³⁷

On Ms. Fazekas’s return to her position as chief librarian in 1988, she became more involved in municipal affairs. For example, she went to some management meetings because her employees were considered municipal employees and were trained through the Town / City. She sometimes liaised with municipal staff through the chief administrative officer for Elliot Lake, sometimes through Daniel Gagnon (responsible for economic development and tourism), and, for a short time, through the director of parks and recreation. These people received her monthly reports, which were also given to the Library board.³⁸

Before Ms. Fazekas’s return to work in 1988, discussions had already started about moving the Library from its location in a building near the centre of town at 1 Mary Walk. The facility was too small for the growing collection of books, the physical plant was not ideal, and it leaked.³⁹

Minutes of a town council meeting on January 19, 1987, record a motion by Mr. Farkouh that authorized the preparation of a financial impact study on “the Zeller’s building versus a new building for new Library facilities.”⁴⁰ It was subsequently determined, with the assistance of the town’s engineer, Pamela Townshend, that no existing buildings were acceptable. At this point, to Ms. Fazekas’s knowledge, the Algo Mall was not being considered as a location.⁴¹

Ms. Fazekas was asked to sit on a selection committee to find an architect to build a new stand-alone facility. Before her return in July 1988, an architect was hired. Ms. Fazekas met with the architect, and plans for a new facility were drawn up. The Library board approved the architect’s plans in late fall 1988.⁴² However, when the plans for the new Library were submitted to council in late 1988, it was decided that, owing to a lack of funds, the project could not go forward.⁴³ The cost for the new Library would have been in the millions of dollars at a time when the town debt was approximately \$14 million.⁴⁴

Elections took place in November 1988. Mr. Farkouh defeated the incumbent mayor, Roger Taylor, and in December 1988 was sworn in.⁴⁵

The new council was in place to assume its functions in January 1989. In early 1989, Mr. Farkouh (now mayor) invited Mr. Liautaud, the Algocen manager, to a Library board meeting and advised that City Council had decided to move the Library into the Mall. According to Ms. Fazekas, the board was very concerned about the move. One of the concerns with the Mary Walk location was that it leaked, and yet the proposed new location was the Algo Mall, also known to have problems with leaks.⁴⁶ The board’s preference was to not move into the Mall. However, according to Ms. Fazekas, the City provided the funds and therefore made the final decision,⁴⁷ despite the fact that the Library board was technically and legally independent of the City.⁴⁸ If the decision had been left to the Library board, Ms. Fazekas believed, the Library would never have moved to the Mall.⁴⁹ Even though the new lease was signed by Janet Taylor, Library board chair, and witnessed by Ms. Fazekas, Ms. Fazekas made it clear in her evidence that she thought the real decision to move to the Mall was made by the City.⁵⁰ (The *Public Libraries Act* provided then, as it does now, that both the city and the board had to agree – the board is authorized to buy or lease land with the consent of the municipal council that appoints its members.⁵¹) The Library was to serve as an anchor tenant at the Mall (occupying 8,500 square feet), with a 20-year lease.*

Mr. Farkouh painted a different picture of the situation and testified that it was the Library board’s decision to move to the Mall.⁵² He did agree, though, that he was involved in the discussions about the Library’s location because the mayor and council were ultimately responsible for the Library budget. Mr. Farkouh testified that he did not encourage the move to the Mall, but instead “supported their decision to go into the Mall and I thought it was a good decision for the community and for the Algo Centre Mall.”⁵³ He agreed that the move represented a vote of confidence for the Mall, which at that time was having difficulties attracting long-term major tenants. The Library filled that gap.⁵⁴ He felt at the time that it was good for the community to have an economically sustainable mall. Mr. Farkouh indicated that, aside from the mines, the Mall was probably the largest commercial property taxpayer in town.⁵⁵

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* Fazekas testimony, March 11, 2013, p. 1119; Fazekas testimony, March 12, 2013, p. 1292. Ms. Fazekas understood that the lease needed to be for 20 years as a condition precedent to Province of Ontario funding for renovations. Those funds apparently came with a requirement of stability and longevity for the leased premises in question. Mr. Farkouh was not asked directly about provincial funding for the move, but he pointed out that, at the time of the move, Elliot Lake’s City Council had set aside approximately \$700,000 for the Library relocation. That amount, he said, did not come from any provincial source but rather was meant for either a new library building or its relocation: Farkouh testimony, May 2, 2013, pp. 7931–2.

Ms. Fazekas recalled that at the meeting with Mr. Liautaud and Mr. Farkouh, the Library board had expressed concerns about the leaks at the Mall, but the board was given assurances from Mr. Liautaud that the leaks were, or would be, fixed. This assurance from Mr. Liautaud about the leaks being remedied was confirmed in a letter from Ms. Taylor to Mr. Liautaud.⁵⁶

Mr. Farkouh testified that he could not recall any assurances given to the Library board that the leaks would be taken care of at the time of the move.⁵⁷ He was as aware, however, “as any other member of the community, that it was common knowledge that the Mall did have leaks in it.”⁵⁸ Indeed, he was aware that the talk in the community of leaks at the Mall went back to shortly after the Mall opened.⁵⁹ His evidence, however, was that he did not believe it was common knowledge that the Mall leaked after every rainfall, that it leaked often, or that it leaked with greater frequency over the years.⁶⁰

He testified that he did not recall specific problems with respect to leaks at the Library when the move to the Mall first occurred:

- Q. What – what was your and the City Council’s plan for dealing with the leaks in the Mall at the time the library moved in?
- A. I wasn’t aware of any. Neither, I believe, the City Council were aware of any leaks that were happening at the time that the library had been relocated to the Mall.
- Q. Sir, I believe you told me just a few minutes ago, that you, along with everybody in the community, knew that the Mall leaked.
- A. Generally did, yes.
- Q. So, what, if any, steps did the City take to deal with the leaks, as they may have affected the library at the time they moved in?
- A. I don’t think – from my memory, I recall any issues with leaks at the beginning of the move of the library.”⁶¹

Later in his testimony, Mr. Farkouh explained the distinction. He said that he would hear from different segments of the community that, from time to time, the Mall leaked in different areas and that it would be repaired; and so, indirectly, this information might indicate that the Library leaked.⁶²

Mr. Farkouh’s testimony about his knowledge – and City Council’s knowledge – of the leaks at the Mall points inexorably to the City’s wilful blindness on this issue. The evidence of many witnesses made it readily apparent that this situation was a problem to be tolerated or even ignored entirely because the Mall was central to the financial well-being of Elliot Lake, particularly at a time when its debts had reached upward of \$14 million.

1989: Ken Snow is hired by Algocen as the maintenance supervisor for the Algo Centre and observes visible leaks

Ken Snow was hired by Algoma Central Properties in 1989 and soon promoted to the position of maintenance supervisor for the Algo Centre. He remained in this position until 2005. He told the Commission that leaks in the Mall were visible from the outset of his job there. After it rained (one to two hours after a good storm), Mr. Snow said, the maintenance people would get calls from tenants. The staff would go to the various stores to put up pails and other devices to catch leaks, and then would go to the roof deck to try to find the source and do a “temporary patch.”⁶³

The worst areas for leaks were the “high traffic areas” such as the entrances to the north and south ramps. Mr. Snow also testified that there were difficult leakage areas around Woolco, Scotiabank, and the Library (which he thought was the worst spot).⁶⁴ He said very few leaks occurred at the back parapet wall (the short wall around the edge of the parking space), since it was an area with little traffic.⁶⁵

Mr. Snow believed that the barriers at the parking ramps did their job, and he recalled that oversized vehicles made it onto the roof on only a couple of occasions.⁶⁶ In terms of snow removal, he said, dump trucks were used, but they stayed on the ramps to receive snow from the roof.⁶⁷ A loader put the snow into the truck, but he never saw the truck on the roof.⁶⁸ At some point during his time at the Mall, one of the maintenance staff used a snow blower to remove the snow by the parapet wall to prevent snowplows from damaging the caulking in the corners.⁶⁹

1990: The City is hit by mine shutdowns, the leaks persist, and the owner continues to deal with the roof in the same way

The City suffers a significant blow

1990 was a very bad year for Elliot Lake. The same year Elliot Lake changed its status from a Town to a City,⁷⁰ the mines announced they would be shutting down. The shutdown would not be gradual; it would be brutally quick. Mayor Farkouh learned of the closures in early 1990, when two local mining executives visited his office.⁷¹

The population of Elliot Lake in 1986 was 17,894, of which 4,858 people were directly employed by the mines. With the announcement of the mine closures came a fear that the loss of this large number of jobs would transform Elliot Lake into a ghost town. By the end of 1990, the population stabilized at 14,300. There was a real concern about a devastating population decline at the time. Figure 1.5.1, which presents projections and statistics prepared for submissions to the provincial government, was referenced by Mr. Farkouh in a chapter he contributed to *Boom town blues*.^{*} Figure 1.5.2 shows the new targets based on projected economic diversification between 1985 and 1995.⁷²

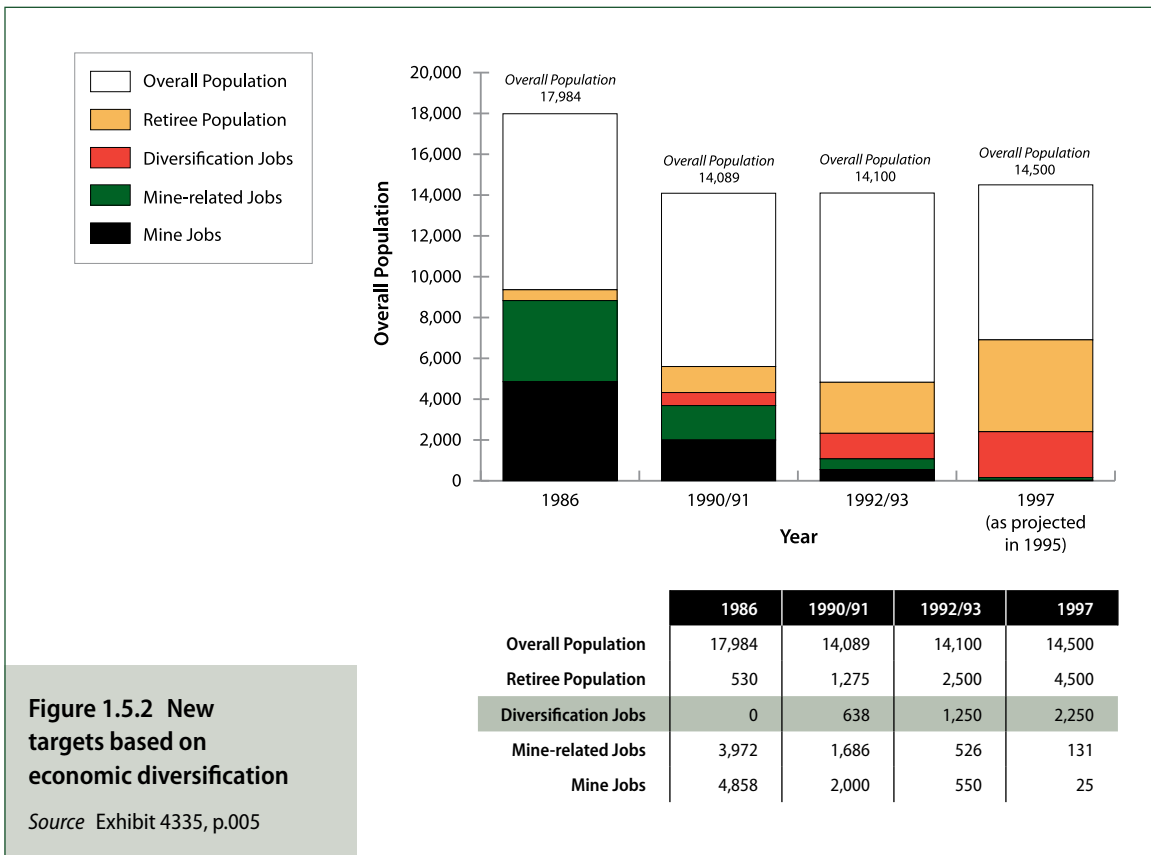
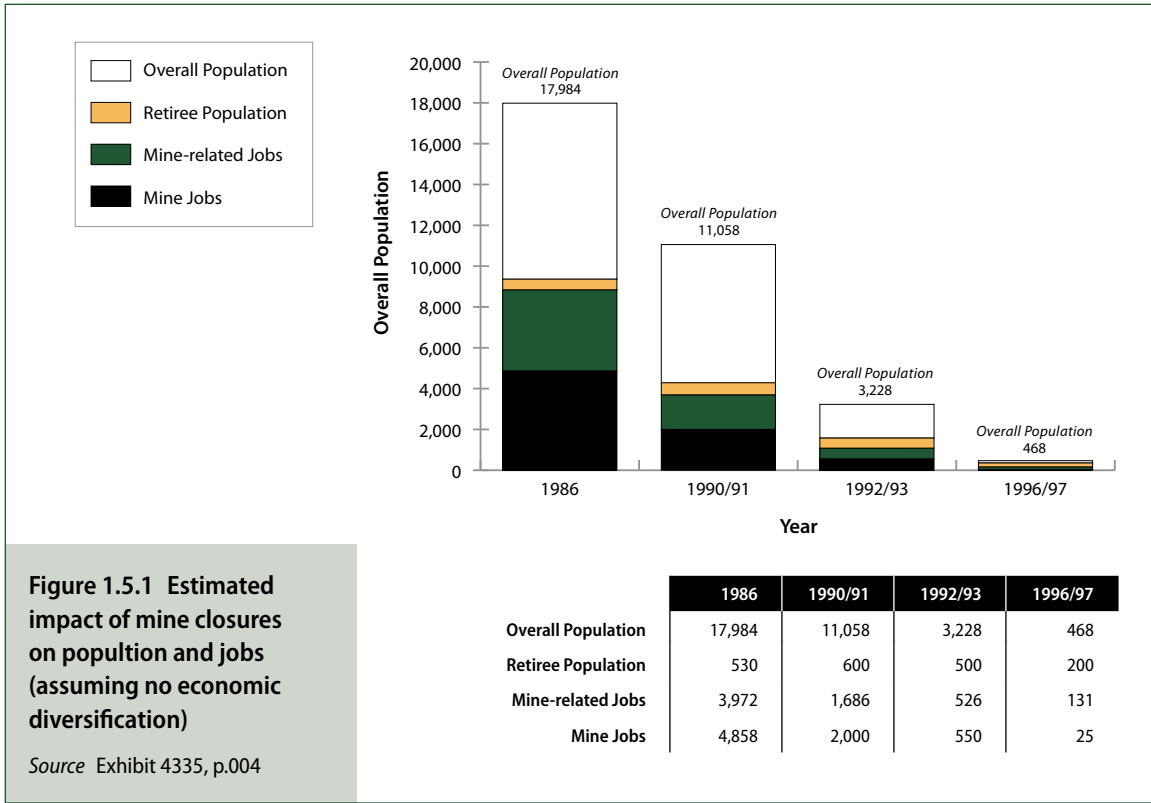
Mr. Farkouh testified to Elliot Lake’s difficulties at the time:

I saw this as a challenge and I was faithful and through the power of prayer and people supporting volunteers and government and others, that we would pull through this because it was a monumental task to be able to deal with the loss of an entire industry and – which, all in, was about 9,000 jobs.

To put that in perspective, in Ottawa that would be the equivalent of 300,000 job losses.⁷³

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^{*} Farkouh testimony, May 7, 2013, pp. 8394–5; Exhibit 4335 includes excerpts from Anne-Marie Mawhiney and Jane Pitblado, eds., *Boom town blues: Elliot Lake, collapse and revival in a single industry community* (Toronto: Dundurn Press, 1999) Mr. Farkouh’s chapter 13 was entitled “Never say die: Seven years later, Elliot Lake enjoys new business and renewed optimism.”



The Mall continues to lose money for Algocen

The Algo Centre was not a good investment for Algocen. It lost money every year but one from 1980 to 1990, for a cumulative loss over that period of \$9,825,986. Its losses in the three years 1988, 1989, and 1990 alone were more than \$3.2 million. The loss was caused by the interest charges on the capital borrowed to construct the building.⁷⁴

Algocen documents its roof maintenance procedures, which never changed

Algocen's process for repairing the joints on the roof remained the same throughout Mr. Caughill's involvement with the Mall.⁷⁵

On August 16, 1990, Algocen prepared a document (which it kept in its records) entitled Procedures for Roof Deck Parking Repair, Algo Centre – Elliot Lake. The procedures called for Mall maintenance to remove old caulking in the crack-control joints, grind the concrete clean, prime it with THC 900 primer, mix THC 900 sealant with a hardener, pour it into the joint, let it set, and, "when THC 900 is set, seal roof with Chem-Trete BSM 40." The document warned against using any other products, but directed the use of Dymonic for temporary repair until the regular product could be applied.⁷⁶ Mr. Caughill explained that Dymonic was a caulking that adhered somewhat better than other products in wet weather, although no caulking ever really worked for long in wet conditions. Patching with Dymonic was a holdover method until the weather permitted use of the THC 900, a product with which Algocen had more success.⁷⁷

Mr. Snow described essentially the same process for repairing the crack-control joints on the roof. He added a description of how, when putting in new caulking in the joints, he and his crew tried to keep the sealant below the surface of the concrete so the weight of vehicles didn't affect the joints and the snowplows didn't hook into the caulking. Mr. Snow stated that 60 percent of his staff's time was spent repairing roof leaks in the summer.⁷⁸

The temporary patching, in wet conditions, involved two staff members sweeping water away from the joint, another using a torch to dry it, and a fourth to put in the Dymonic. No priming or grinding was done for these temporary repairs. Mr. Snow said that, if traffic was kept off the temporary patching, and perhaps with one or two more touch-ups, the repair might last until the weather warmed up in spring.⁷⁹ He added, though, that even the permanent repairs, made once the weather permitted, didn't last forever. Traffic would eventually undo their work, or the sealant would simply not adhere, a problem he attributed to powdery and/or spalling concrete in and around the joints.⁸⁰

In the spring Mr. Snow and his crew would walk every joint on the roof, looking for damage. Using a map they would focus on areas indicated as priorities (according to the leaking that had been occurring inside).⁸¹ Mr. Snow and his crew learned to do the roof repair work on the job. No engineers or others with technical expertise assisted, with the exception of representatives of the sealant suppliers who arrived at the Mall to provide some direction.⁸² The staff members who worked on the roof were those tasked with performing general maintenance in the rest of the Mall. The Mall had its own janitorial staff. Over time, Mr. Snow felt some of the employees had become quite good at the roof repairs.⁸³ At times the amount of work to be done was too great, and Algocen hired outside contractors to do the repairs instead.⁸⁴

Algocen also had a procedure for replacing cracked and flaking concrete at the joints, for checking the roof drains for leaks both within and around the catch basins, and for repairing cracks in the parapet wall.⁸⁵ Mr. Caughill testified that during his time with the Mall, Algocen never reapplied or replaced the caulking (sealant) under the concrete topping at the level of the hollow core slabs. This job would have involved chipping out the concrete topping above the grout keys. Although this idea was presented at some point, Algocen felt it would have been difficult to do and unsafe over an occupied space.⁸⁶

Mr. Caughill testified that there were cracks in the concrete topping not located at the crack-control joints. The maintenance crew repaired these cracks by grinding them to a V shape (typically 3/4 inch wide by 1/2 inch deep) and cleaning, priming, caulking, and sealing them.⁸⁷

As Mr. Snow testified, and I accept, these repair methods used by Algocen stayed the same, albeit with slight modifications and adjustments, from the mid-1980s through to the time Retirement Living sold the Mall to Eastwood in 2005.⁸⁸

1990, A particularly bad year for leaks: Algocen is warned, and agrees, that the roof will “be a problem forever” – and continues to repair it in its usual way

It is likely no coincidence that roof deck repair procedures were set down on paper in 1990, as this year corresponded with a particularly bad one for leaks.⁸⁹

On February 12, 1990, the Ministry of Labour arrived to test the air quality in Woolco as a result of concerns raised by Barbara Cloughley (the store’s personnel manager) and others who were complaining of nausea, headaches, tiredness, and disorientation. Ms. Cloughley recalled that the test results showed “the air wasn’t the best but the recommendation for my office [from the Ministry of Labour] was to leave the door open all the time because it would be continually happening.”*

A meeting about the leaks was held on May 30, 1990. Present were Messrs. Leistner, Caughill, and Liautaud, along with J. Campbell and H. Aho from Daybue Contracting, a firm Algocen had used on different occasions to repair the roof. A review of the roof at this time had led to the conclusion that the leaks were confined to the ends of the hollow core slabs (butt joints) over the steel beams.⁹⁰

Mr. Caughill testified that, as of the date of this meeting, he did not have concerns about the structural integrity of the beams, although the effects of the water on the beams would have come up in conversation. The major concern at the time was the trouble the leaks were causing for the tenants.⁹¹ Algocen, with the assistance of Daybue, sought to understand the cause. It concluded at the time that the barrier sealant was doing its job, so the source of the leaks had to be the caulked joints (i.e., the crack-control joints). The investigation led Algocen to the further conclusion that, although there was definitely some leakage at the crack-control joints along the length of the core slabs, the bulk of the trouble was at the butt joints over the structural steel beams.⁹²

.....

* Cloughley testimony, March 26, 2013, pp. 3192–3, 3206–17. The actual Ministry of Labour report, Exhibit 3268, was referred to during testimony. On p. 4, specifically referencing Ms. Cloughley’s office, it stated that “with the door closed, it does not benefit from the natural ventilation.” Ms. Cloughley felt this reference corroborated her recollection that she was told to keep her door open: Cloughley testimony, March 26, 2013, pp. 3216–17.

The butt joints were the joints between the hollow core slabs at their short ends.⁹³ The slabs there were not physically connected to the next set of 30-foot slabs,⁹⁴ and the only barriers to water penetration at these locations were the sealant at the level of the core slab and the backer rod and sealant at the level of the concrete topping. According to Mr. Caughill, no grout was installed between the slabs at the butt joints.⁹⁵ Mr. Caughill testified that it was concluded that the butt joints were the problem locations on the roof.⁹⁶

Having spent many years working to stop the leaks through the rooftop parking deck, Mr. Snow believed that the leaks were caused by the caulking coming loose at the joints. He made no reference to the problems being limited to the butt joints.⁹⁷ Mr. Snow testified that the sealant in the joints would cease to adhere and, at times, could be simply pulled off by hand and replaced. He felt this problem was the main cause of all the leaks at the Mall.⁹⁸ The three expansion joints were also a source of trouble. The seal in the expansion joints would detach from the concrete on either side of the expansion joint. Mr. Snow recalled that all the seals in the expansion joints were replaced at some point during the time he worked at the Mall.*

In May 1990, Algocen was continuing to try to solve the problem. The minutes of the May 30 meeting indicated that Mr. Campbell, from Daybue, had cut out and removed several areas of caulking, both at the butt ends and longitudinally. These joints were re-ground, primed, and re-caulked. The areas requiring work were “mainly in the drive aisles of the roof deck.”⁹⁹

The repairs did not seem to be working or, at best, were not moving forward fast enough. On July 4, 1990, Woolworths’ real estate department wrote to Algoma Central Properties Inc. (Algocen Realty had changed its name by this time) about the Woolco store, complaining of recent major roof leaks: “You will note from previous correspondence that this has been an ongoing problem for the last couple of years, however, it has become worse.” The letter also stated that Mall management had promised repairs, but nothing had been done.¹⁰⁰

Algocen wrote back on July 12, 1990:

[O]ur personnel have been diligently working on the roof leak problem since it occurred earlier this year. In addition to the patching of the roof joints, we are again examining if there is some undetermined reason which adds to the significance of the roof leaks this year, especially in light of the fact we spent an additional \$190,000 last year in the hopes of permanently solving the problem.¹⁰¹

Mr. Caughill said that, as a result of these concerns, Algocen prepared the August 1990 repair procedure. The Mall staff were directed to work on the roof daily. Mr. Caughill admitted that the 1990 repair procedure was merely an intensification of the same repair work Algocen had already been doing for some time. He indicated that he believed the \$190,000 referred to in the response to Woolworths was the cost of the work that had previously been done by Algocen’s maintenance staff and by Daybue. That work included the removal and replacement of caulking in the joints, the spraying of the roof with Barrier sealant, and related repairs. He could not recall whether repairs to the expansion joint counted in that figure.¹⁰²

.....

* Snow testimony, April 3, 2013, p. 3961. Mr. Caughill also indicated that the expansion joints were a recurring problem. His recollection was that Algocen replaced the major expansion joint at the escalator entrance twice because it had torn as a result of either traffic or faulty installation. His recollection, as well, was that the joint over Woolco was replaced twice. He did not believe that the third joint was ever replaced during the time that Algocen owned the Algo Centre: Rod Caughill testimony, March 13, 2013, pp. 1405–6; Rod Caughill testimony, March 19, 2013, pp. 1978–9.

In September 1990, Mr. Liautaud contacted Mid North Caulking and Installation Ltd. about performing repairs to the roof. The company wrote a follow-up letter that contained an unfortunately accurate prediction:

From our conversation on Friday it is apparent this roof deck will continue to be a problem forever, primarily due to (A) Sealant failure due to spaling [*sic*] concrete at the joint faces. (B) Continuous cracking of the surface slab at locations where cracking was not ment [*sic*] to occur [and] (C) sealant failure.¹⁰³

Mid North believed it could greatly reduce or eliminate leaking through the proper application of THC 900 and provided a quote for its services.¹⁰⁴ Mr. Caughill agreed with Mid North's assessment that the roof was going to continue to be a maintenance issue and agreed with the reasons explaining why the deck was a problem.¹⁰⁵

The expansion joints were also causing trouble in 1990. At some point in 1989, Daybue replaced the expansion joint seal over Woolco, but the leaking resumed almost immediately afterward. In November 1990, Algocen and Daybue discussed the problems with the new expansion joint. Daybue took the position that the failure of the expansion joint resulted from chipped concrete along the edges of the expansion joint, which it attributed to snowplow damage. Algocen disagreed that this was the cause, or the sole cause, and suggested that the concrete installed around the new joint might not have been sufficiently strong. Daybue also asked Algocen why the precast slab “bounced” at the expansion joint, perhaps implying that this movement was another cause of damage at the expansion joint.¹⁰⁶

The flexing or bouncing of the hollow core slabs was another potential cause of roof leaks that Algocen was exploring around this time. Mr. Caughill looked at the structural details of the building to understand why the bouncing was occurring at the ends of the core slabs. He was never able to figure out the reason. He said that he still did not see any logical reason why they would vibrate in this manner, even though the slabs were not fastened at each end.¹⁰⁷ He did think, though, that this bouncing might have caused the caulking in the joints of the concrete topping to debond.¹⁰⁸ Mr. Snow also seemed to recall the slabs moving or flexing a bit at their ends, and he said that one could hear a thumping and feel movement above from joint to joint as the cars drove along the parking deck.¹⁰⁹

It seemed that, despite Algocen's increased efforts in 1990, the repairs were not working. The leak situation was getting worse, and the potential causes were multiplying. By the end of the year, Algocen had made the decision to seek the assistance of professional engineers.

A roof survey dated November 29, 1990, reported some success with joint repairs. Joints that had been re-caulked over Woolco had not leaked since. Joints over the Library, however, had been re-caulked but were still leaking. The suggestion at the time was that the joints had not been dust-free when resealed by Daybue.¹¹⁰ A leak was also reported from one of the drains near the Lotto booth in the area of the 2012 collapse.¹¹¹ It was noted that cracks were also appearing along the longitudinal lines of the core slab joints. These new cracks were not at the crack-controlled areas, but above the intermediate joints of the hollow core slabs¹¹² – another common problem, Mr. Caughill said, during his involvement with the Mall. By the time Algocen sold the building in 1999, more than 50 percent of the longitudinal joints without a crack-control joint had developed cracks on their own, and new V joints had to be created and sealed in those locations.¹¹³

It seemed that, despite Algocen's increased efforts in 1990, the repairs were not working. The leak situation was getting worse, and the potential causes were multiplying. By the end of the year, Algocen had made the decision to seek the assistance of professional engineers.

Algoma did not apply for, and the City did not ask for, building permits for any of the repairs

Elliot Lake's Building Department continued to deal with Algocen from 1986 to 1990. This involvement appears to have related to building permits, fire safety issues, renovations, and similar issues. I saw no correspondence or other documentation that would indicate the town's involvement with the leaks at the Mall or with repairs related to those leaks.

There was evidence that suggested a tendency on the part of Algocen not to apply for building permits when they were required. Mr. Pigeau testified that this practice was his impression. He said that, on occasion, Algocen either forgot to or simply failed to apply to the Town / City for building permits and would need to be reminded. This oversight appears to have been connected to tenant fit-ups and related work. Mr. Pigeau could only speculate that it might have related to saving money, trying to circumvent the Code, or needing to be reminded.¹¹⁴

The fact that Algocen might not always have applied for building permits when it should have is relevant because Algocen likely should have done so when it replaced the major expansion joints on the roof. Rod Caughill testified that Algocen did not apply for a building permit to change the seals in the expansion joints because it did not view this work as falling within the definition of "construct"* under the *Building Code Act*. Algocen also did not consider this work to be a "material change to the building or alteration," even though Mr. Caughill agreed the change affected an engineered product.¹¹⁵

Had Algocen applied for a building permit, the normal result would have been an inspection by the City's Building Department and recognition that the Mall needed repairs. Given the admissions by Mr. Pigeau of his awareness of the leaks and his concomitant regular inaction, one may justifiably suspect that, even if the permits had been obtained, it is unlikely that anything would have been done to enforce the needed repairs to the Mall.

Algocen gets advice from engineers but does not repair the roof

Autumn 1990: Algocen seeks engineering advice on repairing the leaks and the state of degradation; it had concerns about structural damage from years of leaks

Rod Caughill testified that the significant leaks in 1990 led to Algocen becoming frustrated. It did not know whether their repair methods were effective. "[W]e were looking for some guidance and some help," he testified.¹¹⁶ It was his evidence that the company was concerned about the structure of the building, and particularly with whether any of the components "right from the steel up to the surface of the slab" had been degraded by the years of leaks. Algocen's concerns were with potential rust on the steel, the potential effect of

.....

* "Construct" is defined in the *Building Code Act, 1992*, SO 1992, c 23, as meaning "anything in the erection, installation, extension or material alteration or repair of a building."

the salt-laden water on the concrete and the steel inside the concrete, and any freeze–thaw issues.¹¹⁷ Algocen wanted to establish a “baseline” with respect to the condition of the building from this point forward. As Mr. Caughill testified:

Up until that point, we had no idea of how much degradation, if any, had taken place from 1979 until 1990. On a go-forward basis we wanted to be able to say that as of this date, this was the condition, and if it did change, we would just have something to reference to.¹¹⁸

January 1991: Trow is retained to provide a condition survey of the parking deck, told that Algocen had concerns about structural damage, and told to report on the structural integrity

In October 1990, Rod Caughill contacted Trow Consulting Engineers Ltd., a multi-disciplinary engineering firm, seeking its assistance. Algocen understood that Trow had experience with parking structures over malls and other occupied areas and had done some engineering work during the initial construction phase.¹¹⁹

On October 12, 1990, Domenic Dell’Aquila, CET (certified engineering technologist), and Remy Iamonaco, P. Eng., from Trow responded in writing to Mr. Caughill’s inquiry, proposing a detailed condition survey of the Algo Centre parking structure. The survey was to be conducted and signed off by Trow’s structural rehabilitation division. Despite its title, that division, and Trow in general, did not have any structural engineers at the time.¹²⁰ Mr. Dell’Aquila, a CET (not a professional engineer), specialized in concrete restoration projects, parking structures, and concrete structures generally.* Mr. Iamonaco was a civil engineer with experience in concrete technology, protection systems, and repair techniques.¹²¹ In 1991, Mr. Iamonaco was manager of Trow’s structural rehabilitation division, which mainly dealt with the repair and protection of parking structures and bridge decks. Ninety percent of the group’s work at the time was on parking structures. A few of the structures they had worked on were over occupied spaces, but most were underground facilities.¹²² Neither man had prior involvement with the Algo Centre.¹²³

Trow was aware that the concrete topping had cracks and the caulked joints were failing. However, Mr. Dell’Aquila indicated that, although he understood going into the project that the building had a history of leakage, he was not aware that it had leaked from the day it opened and was not sure that he ever learned of this fact during his involvement with the Mall.¹²⁴

In contrast, Rod Caughill believed that Trow understood that the leaks were a long-standing problem – despite the fact that, following the completion of construction and the opening of the Mall, Trow had no involvement with the leaks or the Mall until it was contacted in 1990.¹²⁵ Mr. Caughill did not, however, recall what he specifically told Trow about the leaks.

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* Exhibit 33. Mr. Dell’Aquila was a certified engineering technologist, a status that could be obtained with a three-year degree in civil engineering and two years’ experience in the workforce. He was not a structural engineer, nor did he have special qualifications related to structural engineering and structural issues. From his start with Trow in 1981, through to 1990, he specialized in concrete restoration projects, parking structures, and concrete structures, generally. He was a member of the Ontario Association of Certified Engineering Technicians and Technologists, an organization with its own Code of Ethics and Rules of Professional Conduct: Dell’Aquila testimony, March 20, 2013, pp. 2076–8; Dell’Aquila testimony, March 21, 2013, pp. 2343–5; Exhibit 3143.

Mr. Iamonaco was originally a certified engineering technologist like Mr. Dell’Aquila, but in 1985, after taking additional courses, he became a licensed engineer: He worked with Trow until 2002. He is now vice-president with the Toronto Parking Authority, where he is in charge of the design, construction, and maintenance group: Iamonaco testimony, March 21, 2013, pp. 2439–40.

Mr. Dell'Aquila and Mr. Iamono proposed that the detailed condition survey include visual and sounding surveys, coring, photographs, and a formal report explaining the significance of Trow's findings and a comparative analysis of repair options and costs. The proposal included the statement that they had been told by Mr. Caughill that "the caulked joints appear to be failing and the suspended slab has had a history of leakage problems."¹²⁶

Rod Caughill responded to Trow's proposal by a letter dated December 3, 1990, in which he said that Algocen was preparing to issue a purchase order for the project but that "there are, however, a few items we would like clarified before issuing this order." He wrote:

- 1) Along with the surveys, proposals and reports we are requesting definite repair recommendations. These should address both immediate repairs as well as any future considerations that may become necessary.
- 2) *As we have definite concerns respecting structural damage*, we would request that your inspections and subsequent reports address any conditions that may be the result of roof deck related problems.

...

*As you can no doubt appreciate, we have quite a problem with this uncovered parking deck which is also the roof assembly over our retail tenants. We have already expended substantial dollars on this structure and now turn to your firm for expert assessment and recommendations.*¹²⁷ [Emphasis added.]

On January 28, 1991, Algocen issued a purchase order to Trow, signed by Rod Caughill, which authorized expenditure of up to \$8,500 for a "Condition Survey" of the parking structure at the Mall, which was to "include but not be limited to" a number of items. The last-mentioned item was "Assessment of Structural Integrity, as Influenced by the Parking Structure Condition."¹²⁸

Rod Caughill testified that when he referred to "structural integrity," he meant the ability of a building to support itself and any loads to which it may be subject. He agreed that if a building was unable to support those loads, you could have a catastrophic failure – a collapse.¹²⁹

April 1991: City knows of and receives a complaint of ongoing leaks at the Library and continues to do nothing

Library complains of leaks to Algocen, mayor, council, and chief building official

On April 25, 1991, just one day after Trow's field visit to the Mall, Janet Taylor, chair of the Library board, wrote to Mr. Liautaud about the history of leaks in the Library since the move to the Mall. The letter was copied to the mayor and council, and to the City of Elliot Lake, including the chief building official, Mr. Pigeau. Ms. Taylor wrote:

The Library Board is very concerned with the continuing problems with the mall's roof, especially over the library location.

We do acknowledge and appreciate all of the efforts of yourself and the maintenance staff to date; however, we were assured that the problem had been rectified before the library even moved to the mall.

... Since the library opened in the mall, a major portion of the collection has had to be covered by plastic in order that the books are not damaged, the floor is littered with buckets, and many of the ceiling tiles are missing. The hoses which hang from the ceiling can be seen the whole length of the mall and negate any value which the art displays might contribute to the library's visual appeal.¹³⁰

The chief librarian, Ms. Fazekas, helped draft this letter to Mr. Liautaud. She considered that it constituted a complaint.¹³¹

Mr. Liautaud wrote back to Ms. Taylor on May 7, 1991, with a copy to the mayor and council and Mr. Pigeau.* Among other things, Mr. Liautaud wrote:

As you are no doubt aware, we had continuous problems until 1986, when after much examination we implemented a new maintenance procedure which worked consistently until the spring of 1990 with the exception of one major expansion joint which had to be redone in July of 1989. Apart from the latter, we also waterproofed the deck in 1989 for added protection.

Due to the large number of leaks which occurred in the spring of 1990, we redid 100% of the joints over the entire mall area, which, needless to say, did not fix all of the leaks. By the fall of last year after only marginal success, we conversed with a new consultant, Trow Consulting Engineers ... a plan was formulated and on their advice a multitude of testing should be completed in the spring of 1991 in order to determine a reliable recommendation. We therefore retained their services and scheduled April 15, 1991 as their commencement date ...

Please note that the pails, pans, hoses etc. as referenced in your letter are only there to minimize damage and leakage inconvenience until the problem is solved and by no means are a permanent solution.¹³²

Ms. Fazekas provided vivid testimony about the difficult situation created by the persistent leaks at the Library in this time frame. She described how buckets and tarps needed to be brought out each time it rained, but the leaks were unpredictable. There were no windows in the Library, and at times the staff was unaware it had started to rain until the water started to come in. It rarely leaked in the section of the Library located under the Hotel. Leaks were frequent in the section of the Library directly under a high-traffic area for the parking lot above.† The staff had to cover this whole section of the Library virtually every time it rained (see fig.1.5.3).¹³³



Figure 1.5.3 (a) Buckets and tarps are used to catch leaks and cover large sections of books in the Library; (b) numerous tiles missing in the Library ceiling due to leaks

Source Exhibit 11-74

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* Mr. Burling assumed this letter would have come through his office first, but he did not recall seeing it or speaking to anybody about it: Burling testimony, April 2, 2013, p. 3825.

† Fazekas testimony, March 12, 2013, pp. 1144–7. See also Exhibit 2048, which is a diagram provided by Ms. Fazekas outlining the main areas of leaks in the Library. See Fazekas testimony, March 12, 2013, p. 1323, where Ms. Fazekas agrees that the library was located just where the ramp attached to the roof parking level, making it an “extremely high” traffic area.

Algocen staff confirmed Ms. Fazekas's evidence. Rod Caughill, for example, recalled the pans and hoses in place in the Library, as did Mr. Snow. Mr. Caughill acknowledged that the Library was a problem that needed a solution. Mr. Snow agreed it was a high-traffic area, where the leaks never stopped for long.¹³⁴

Chief building official meets with Algocen – is told an engineer has been retained, and does nothing

The City of Elliot Lake's chief building official, Mr. Pigeau, met with the Mall manager, Mr. Liautaud, on May 1, 1991, to address the concerns raised in the recent letter from the Library. Mr. Liautaud advised him that an engineer had been hired to analyze the problem and that a report was forthcoming.¹³⁵ Although Mr. Pigeau considered that the letter from the Library constituted a complaint in writing about the condition of the roof at the Mall, he felt the matter was being addressed when he learned that an engineer had been hired to analyze the problem.¹³⁶

Mr. Pigeau gave inconsistent evidence about whether he followed up with the management at the Mall to obtain a copy of the Trow report. He testified that he asked Mr. Liautaud for the Trow report but did not receive it. However, he did not request it in writing and did not appear to have pressed the issue with Mr. Liautaud – or anyone else from Algocen – in order to obtain a copy. In fact, he said he did not “necessarily recall” Mr. Liautaud saying no to his request and could only guess at why he did not receive a copy. Throughout his tenure as chief building official, he never saw the Trow (1991) report.*

Mr. Pigeau gave the astonishing evidence that it did in fact occur to him that he may not have received the report because Algocen had something to hide. Despite this concern, he still did not initiate a roof inspection or take any serious steps to attempt to obtain a copy of the report.¹³⁷ After having seen the report in preparation for his testimony before the Commission, he speculated that Algocen did not give him a copy because he would have pursued the matter and forced the company to spend the large amount of money set out in the first Trow report for the necessary roof repairs.¹³⁸

It is unclear whether Algocen specifically withheld the Trow report from the City. Mr. Liautaud has died. Mr. Leistner testified that he did not know whether Mr. Liautaud had been instructed not to provide it and was not aware of any discussions between Mall management and Mr. Pigeau.¹³⁹ He also said there were never any internal discussions within Algocen about what would happen if the City's Building Department ordered the company to repair the roof. He agreed that if the Trow report or other similar documents had gone to the City, it might have forced Algocen to decide whether to repair, demolish, or close the Mall: “Well, I think it would make you make a decision. That's right. Don't forget we are ... dealing with an economic [sic] obsolete building ... it would just maybe make you go one way or the other quicker.”¹⁴⁰

Mr. Pigeau did not perform an inspection, even though he knew the roof was not watertight over the Library. Nor did he follow up on Algocen's failure to provide him with a copy of the Trow report. He believed that to have done so would have been a duplication of efforts, given the retainer of Trow by Algocen. Mr. Pigeau testified that, if he had decided to inspect, he would have likely brought in a professional to assess the causes for the leaks;¹⁴¹ and if he had seen the Trow report, which had found that the roof slab was inappropriate for achieving a watertight condition, he would have pursued the matter through the Ontario *Building Code* or the City's Property Standards By-law. He was vague and uncertain, though, as to how he would have gone about it. He might have issued an order under the by-law, or he might have checked with the *Building Code* Commission to see what else he could have done in terms of enforcement.¹⁴²

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* Pigeau testimony, March 22, 2013, pp. 2587–92. Mr. Burling was not aware that Mr. Liautaud had told Mr. Pigeau about the upcoming engineer's report: Burling testimony, April 2, 2013, p. 3824.

Mayor Farkouh claims not to have received the letter of complaint

Mr. Farkouh, mayor at the time, denied receiving a copy of the letter from the Library. He stated that he was not aware that an engineer had been hired by the Mall, and he did not know about the state of affairs described in the letter, such as the buckets, missing ceiling tiles, and hoses. He was not in the Mall regularly in the 1990s, and he said he did not physically witness leaks himself.¹⁴³

Mr. Farkouh testified that he was aware that it was common knowledge in the community that the Mall had leaks.¹⁴⁴ He heard from different sectors of the community that whenever there was a heavy rain there would be leaks in different areas of the Mall, and he accepted that this was the general understanding in the community.¹⁴⁵

1990–2000: The chief administrative officer never raised the issue of leaks with the chief building official

Fred Bauthus held the position of chief administrative officer for the City of Elliot Lake from February 1990 to July 2000, and he would hold it again from 2007 to 2010. The chief administrative officer is the senior official in the municipality, responsible for ensuring that staff implement the policies and directions of council, including delivery of services. All staff reported through him, and he in turn reported to council, albeit with the assistance of the various heads of departments. He also provided the council with expert advice in terms of the delivery of services.¹⁴⁶

Mr. Bauthus also had no recollection of the 1991 letter from the Library.¹⁴⁷ He believed that it did constitute a complaint, and he would have assumed that it required investigation on the part of the property standards officer who became aware of it. He suggested that Mr. Pigeau did address it by “following up with the parties to see that they were working on that problem.”¹⁴⁸ However, his view was that if Mr. Pigeau had requested the engineering report and been denied, he would have expected the matter to be pursued further.¹⁴⁹

During his tenure as chief administrative officer in the 1990s, Mr. Bauthus was aware of the leaks at the Mall, both at the Library and in other areas. During certain periods, he was in the Mall as often as once a day and went to the Library a fair bit.¹⁵⁰ He recalled seeing buckets collecting water from the leaks on some occasions, along with hoses to redirect water and tarps in the Library and elsewhere to protect books and merchandise. He could not say with any certainty whether there were times the leaks were worse than at other times during the 1990 to 2000 period, but he did recall that they had become worse when he returned to his duties as chief administrative officer in 2007.¹⁵¹ Despite Mr. Bauthus’s awareness of leaks at the Mall, he did not raise the issue with the City’s chief building official.¹⁵²

The Mall was important to the community, and the Library was important to the Mall

When asked whether his failure to discuss the leaks with the chief building official related to the importance of the Mall to the community, Mr. Bauthus described the Mall as an integral part of the economic fabric of Elliot Lake. It was a shopping facility, a major centre, and a major source of employment. It was also integral to Retirement Living’s purposes, as that organization needed a major commercial centre in the City.¹⁵³ In short, the Mall was important to the community, and the Library was important to the Mall.¹⁵⁴ Furthermore, the Algo Centre, following the mine closures, was one of the largest, if not the largest, taxpayer in the City, contributing something in the order of \$500,000 in taxes per year.¹⁵⁵

Nevertheless, Mr. Bauthus insisted that it was never “intimated or stated specifically” during the 1990s that the leaks at the Mall (and the Library in particular) should be treated differently because of the importance of the Mall to the community and of the Library to the Mall. There was “no direction or discussion on my part that we should treat the mall differently and I know I did not direct staff to do that otherwise.”¹⁵⁶

The City’s inaction was not because of indifference

The City’s laissez-faire inclination did not proceed from indifference. Quite the contrary. Although rarely explicitly stated, it is clear that any action forcing the owners to undertake meaningful remedial steps would have entailed the loss of a major source of employment, a major blow to tax revenues, and impairment of the City’s social hub. I suspect that the fear of that eventuality may have been the underpinning of the inertia that characterized official conduct at city hall over much of the Mall’s existence – from the 1980s as I have described through to the collapse. As I explain later, it would also have had a negative effect on Retirement Living’s bottom line: the commonality of interest between that organization’s and the City’s goals would, as we shall see, be of considerable consequence.

May 1991: First Trow report

Trow conducted its fieldwork at the Mall from April 22 to April 24, 1991, and produced its report in May 1991. This was the first engineering report produced relating to the structural integrity of roof deck parking at the Algo Mall.¹⁵⁷

As the engineer, Mr. Iamonaco was the principal in charge of the Algocen file and responsible for final review and approval of reports.¹⁵⁸ However, he did not actually go to the site in 1991, and he did not recall any prior discussion with Rod Caughill or anyone else from Algocen. He testified that he would have discussed the work beforehand with Mr. Dell’Aquila, taken phone calls during the process, and read and discussed the contents with him before signing off on the report.¹⁵⁹

Inspection methods: Visual survey of accessible surfaces, sounding survey, concrete coring, and component inspection

The authors describe the fieldwork they carried out, which included a visual survey, a sounding survey, coring and component inspection, and photographs.¹⁶⁰ The visual survey was of “accessible top surfaces” of the roof slab and pedestrian walkways, and observations of the soffit (underside) of the roof slab and pedestrian walkways for evidence of deterioration.¹⁶¹ The sounding survey consisted of a random chain drag of the top surface of the concrete topping meant to detect hollow-sounding areas, which would indicate a debonding of the topping from the surface of the hollow core slabs. This task was followed by coring of the debonded areas to determine the cause of the hollow sound.¹⁶² Trow took a total of 13 representative core samples, 12 from the top surface of the concrete overlay, plus another cutting through the full depth of the roof structure. This cutting was meant to allow it to determine construction details, chloride ion content in the concrete, and the condition of the top surface of the supporting steel beams.* Photographs were taken throughout the process to document the condition of the structure.¹⁶³

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* Exhibit 35, pp. 5–6. Rod Caughill understood that the concern about chloride in the concrete related to the possibility that it might have penetrated the concrete and corroded the rebar (the ridged steel rod used in reinforced concrete): Rod Caughill testimony, March 13, 2013, p. 1521.

Photographs and drawings of the Mall show Trow's observations

The 1991 Trow report included as an appendix a drawing it created to show the gridlines for the roof together with notations of observations. The drawing contained a legend with symbols for rust stains, leakage, leach stains,* patching, cracks, spalls, and open spalls. The drawing set out the locations where these problems had been noted¹⁶⁴ and demonstrated that the cracking on the roof was widespread as of 1991.¹⁶⁵

Trow also created a similar visual survey with legend for the soffit of the hollow core slabs that made up the rooftop parking deck.¹⁶⁶ It contained a legend with symbols for water stains, stains on the false ceilings, core locations, rust stains, drain locations, pail locations, metal pans, cracks, wall cracks, leach stains, missing fireproofing, pails above the false ceilings, and broken concrete.¹⁶⁷ The drawing contained indications of water and rust stains at locations throughout the Mall (other than under the Hotel), including almost every occupied space and almost every public space.¹⁶⁸ Mr. Dell'Aquila walked the entire second floor of the Mall to create this drawing, going above the ceiling tiles on numerous occasions. The drawing was indicative of widespread rather than isolated leakage.¹⁶⁹ Rod Caughill agreed that certain of the observations, by necessity, were made by looking above the ceiling tiles, such as the metal pans, missing fireproofing, and pails above the false ceilings.¹⁷⁰

Significant debonding of concrete topping, expansion joints, and crack-control joints; many random or unintentional cracks – further deterioration likely

The top surface of the concrete topping was “generally found to be in good condition.” This finding was made despite Trow noting that the rooftop parking exhibited some large areas of scaling, cracking, and broken and/or debonded repair patches. Trow also observed debonded joint sealant and many areas of debonded concrete topping along the sealed joints and expansion joints.[†] In total, it measured almost two-thirds of the “Primary Control Joints directly above steel beams,” which was a reference to the butt joints,[‡] and found 60 percent of the concrete along the primary control joints to be debonded. Approximately, one-fifth of the “Secondary Control Joints,” a reference to the longitudinal crack-control joints,¹⁷¹ were sounded, and 23 percent of the concrete along those joints was debonded. One-third of the major expansion joints were sounded, and 100 percent of the concrete along them was found to be debonded.[§]

Trow also found approximately 864 metres of random or unintentional cracks in the concrete topping. These were observed to “coincide over the structural precast slab joints below the concrete topping as they are parallel to one another and are equidistantly spaced at approximately 1.2m.”¹⁷² Thus, many of the new cracks in the roof were forming over the spaces between the precast slabs below, in the areas where HSP chose *not* to create crack-control joints.

Trow observed, as well, a “thin elastomeric membrane” in certain “localized” positions over the top surface of the concrete topping and caulked joint locations. It suggested this membrane was the result of a “previous attempt to protect that area from ingress of water.” The membrane was noted to be worn down.¹⁷³

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* A leach stain is white efflorescence, which Mr. Dell'Aquila described as the result of water mixed with salt making its way through the hollow core slabs: Dell'Aquila testimony, March 20, 2013, p. 2138.

† Trow also observed that the parapet wall along the perimeter of the parking structure showed cracks that were not considered structurally significant but required protection from water penetration: Exhibit 35, abstract. See, also, p. 7 of Exhibit 35 for the condition of the concrete topping in general.

‡ Dell'Aquila testimony, March 20, 2013, p. 2123. Mr. Dell'Aquila also clarified that the perimeter joints mentioned in the report were the joints butting up against either the parapet or stairwell walls: Dell'Aquila testimony, March 20, 2013, pp. 2123–4.

§ Exhibit 35, p. 7. Trow notes that, typically, the width of the debonded concrete topping over the control joints was 0.6 metres. The typical width of debonded concrete topping centred over the major expansion joint along Gridline 10 was 2.7 metres.

Trow noted the concrete topping around the drains on the parking deck to be “typically cracked, debonded and/or broken.” The drains were single level (i.e., capable of draining only surface runoff). The disadvantage of this type of drain, according to Trow, was that any water accumulating between the concrete topping and the precast structural slabs could drain only “through the de-bonded caulked joints or through cracks in the precast slabs and into the Mall.”¹⁷⁴

The core samples taken in debonded areas revealed concrete deterioration at the bottom of the concrete topping ranging from 5 to 40 millimetres in depth. The majority of the cores showed little to no bond between the concrete overlay and the top surface of the precast slabs. The wire mesh reinforcement in the concrete topping was typically corroded. Trow also found two corroded pre-stressed cables, at depths of 75 and 150 millimetres from the top surface of the precast slab.¹⁷⁵ One core sample taken extended the full depth of the precast slab and exposed the top surface of the supporting steel beam. The surface of that beam was noted to contain surface rust.¹⁷⁶

... in addition to being debonded from the precast slab at many locations, the concrete topping of the roof slab was in an “initial state of deterioration” and that high chloride ion content in the concrete coupled with freeze–thaw action of entrapped water would “likely cause further deterioration to the concrete topping wearing surface.”

Although Trow began its report by stating that the concrete topping was found to be in generally good condition, ultimately it concluded that, in addition to being debonded from the precast slab at many locations, the concrete topping of the roof slab was in an “initial state of deterioration” and that high chloride ion content in the concrete coupled with freeze–thaw action of entrapped water would “likely cause further deterioration to the concrete topping wearing surface.”¹⁷⁷

Trow concluded that all three major expansion joints showed signs of leakage. The crack-control joints in the concrete topping were described as broken, leaking, and containing debonded sealant. Water was entrapped between the concrete topping and precast slab, the result of inadequate drainage and a lack of watertightness.¹⁷⁸ Cracks were noted in the protective nosings and the adjacent concrete topping along the east–west expansion joint by Woolco.¹⁷⁹ The east–west expansion joint in front of the Hotel and extending across the area above the Library was noted to have been caulked its full length. Mr. Caughill agreed that that meant the joint had somehow failed and caulking had been added to correct it.¹⁸⁰

The parking deck slabs: Evidence of excessive leakage – continued leaks would cause increased deterioration

Trow found that the soffit of the parking deck was generally in good condition, but then pointed to “evidence of excessive leakage through the joints of the precast hollow slabs above the mall level.”¹⁸¹ It observed metal pans and pails above the false ceiling in stores “to divert the water leakage.”¹⁸² Trow noted in particular that many leaks were occurring at the butt joints between the precast slabs.¹⁸³

Water stains were noted on the underside of the exterior pedestrian walkway.¹⁸⁴ The exposed steel elements at the pedestrian walkway stairwell and slab soffit were rusted, and localized areas of broken concrete were noted on the soffit part of the slabs along the pedestrian walkway.¹⁸⁵

Trow concluded that the soffit of the precast hollow core structural slabs showed numerous signs of leakage – mainly through the control joints and expansion joints, but also through some random cracks. Continued water and salt penetration, the report said, would cause increased deterioration of the concrete, the pre-stressed cables, the sprayed-on fireproofing, the false-ceiling tiles, and the electrical conduits.¹⁸⁶

Steel beams: Surface rust and missing fireproofing from water damage, but no report on connections between beams and supporting columns

Trow found that the other components of the parking structure (other than the suspended slabs) were in good condition, with a few exceptions, among them that many of the slab-supporting steel beams contained surface rust “at locations which coincided with leakage.”* This conclusion was reached on the basis of visual observations alone.¹⁸⁷ Mr. Dell’Aquila testified that, if more serious rusting (typically evidenced by multiple flaking layers of rust) had been observed, Trow would have measured it, reported it, and recommended review by a structural engineer.[†]

Trow also noted that the fireproofing material on the steel beams at the majority of the leakage areas had debonded or completely fallen off.[‡] It also observed that many of the suspended ceiling panels and tracks were stained by water and/or rust, while certain electrical conduits were corroded from ingress of water and salt.¹⁸⁸

The report was silent on the condition of the steel connections in the parking structure. Mr. Iamono agreed that they were an important part of Trow’s scope of work. He could not explain why surface rust on the steel beams was reported, but the condition of the connections unmentioned.¹⁸⁹

Waterproofing design inappropriate

Trow wrote: “It is our opinion that the design used for this roof slab is inappropriate in achieving a watertight condition over commercial areas.”¹⁹⁰

Recommended repairs – install waterproofing membrane

Trow recommended waterproofing and repairs to the “entire suspended levels.”¹⁹¹ It presented two repair options. Both involved the installation of a type of waterproofing membrane over the whole of the parking deck. The first provided for the installation of a membrane above the concrete topping already in place, after making repairs to the topping. The second provided for the removal of the concrete topping and the application of the membrane, followed by the installation of a new asphalt wearing course on top. But before the waterproofing system was applied over the existing concrete topping, a review by a structural engineer would be needed to ensure that the roof could take the additional load.¹⁹²

Trow recommended that Algocen proceed with option 2, citing certain difficulties with the waterproofing details that might arise with option 1. Trow also advised that there were risks associated with option 2; namely, the possibility that the removal of the concrete topping would cause further damage to the precast slabs.¹⁹³

Trow also recommended a series of repairs to other components, including the removal of unsound concrete on the soffit of the slabs and patch repair in the context of installing a new waterproofing system.¹⁹⁴ It recommended installing new protective nosings at all expansion joint locations, and sealing the joints with a continuous rubber gland. It suggested installing new seals where the expansion joints met the parapet walls; repairing the perimeter and parapet walls themselves;¹⁹⁵ and installing bi-level drains for the present system – or

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* Mr. Dell’Aquila explained in testimony that by surface rust, Trow meant that the beams were rusty but without loss of section. Loss of section means loss of thickness. He described what would occur with actual loss of section caused by rusting: “When you get loss of section, you get multiple flaking of layers of rust, and when you scrape that off, and then you measure it, you can see that there is loss of section or thickness of the member”: Dell’Aquila testimony, March 21, 2013, pp. 2239, 2241–2.

† Dell’Aquila testimony, March 21, 2013, pp. 2242–3. Mr. Dell’Aquila considered that a couple of millimetres would amount to loss of section: Dell’Aquila testimony, March 21, 2013, p. 2268.

‡ Exhibit 35, p. 9. In certain areas, such as the SAANS store, the beams were found never to have contained fireproofing.

possibly new drains, depending on the final grade of any new surface installed.¹⁹⁶ As well, Trow recommended cleaning the steel beams and applying a rust-inhibiting paint to all the beams and stairwell supports showing signs of rust, as well as replacing the missing fireproofing.¹⁹⁷

Repair costs: \$1.26 million

Trow estimated that option 2 would cost \$1.26 million, with an additional 10 percent allowance for the tendering process and contingencies. The cost estimate was broken down as \$1.1 million for the waterproofing, and \$160,000 for the recommended work to the expansion joints, perimeter and parapet walls, pedestrian walkways, and drains. This estimate did not include the cost of repairs to the electrical conduits, fixtures, ceiling panels, and tracks, or of the treatment of structural steel elements, including fireproofing. Nor did it include the cost of a structural engineer, if required.¹⁹⁸

No cost estimate was provided for option 1.

Trow concluded its report by stating that additional and potentially significant costs could arise during repair as a result of “disruption of use to hotel guests, shoppers and others.”¹⁹⁹

Trow warns Algocen: Waterproof the slab to maintain its structural integrity, or suffer further deterioration and leakage

Trow gave a specific warning in its report that deterioration and leakage would continue if the entire slab and expansion joints were not waterproofed:

Considering the above and due to the history of the leakage problems at this parking facility it is very likely that further deterioration and leakage will continue to occur if the entire slab and expansion joints are not waterproofed.²⁰⁰

It also recommended that all repairs, including the waterproofing, be carried out as soon as possible “in order to maintain the structural integrity of the slab and to reduce the potential for further deterioration, leakage and probably insurance claims for water damaged property inside the stores.”²⁰¹

Trow specifically explained how further deterioration would occur if the leaks were not stopped:

At the present time the chloride ion contents are high and the concrete topping is deteriorating. The precast hollow slabs are generally in good condition with the exception of the corroded pre-stressed cables found at core location No. 3. Since the roof slab is not protected with a waterproofing system, continued moisture and chloride ion penetration can be expected to further increase chloride levels with time (depending on the usage of the parking area) thereby initiating corrosion of the prestressed cables and deterioration of the concrete topping and precast slabs. A practical and cost effective solution would be to significantly reduce the penetration of moisture and chlorides into the concrete roof slab by installing an approved waterproofing system over the entire roof area including all expansion joints. *If this procedure is properly carried out before any further ingress of chlorides, the life of the roof slab would be significantly extended.*²⁰² [Emphasis added.]

Mr. Dell’Aquila and Mr. Iamonaco testified that it would have been premature at this stage to state in the report that continued deterioration would lead to collapse, although Mr. Dell’Aquila acknowledged in his evidence that, if the existing conditions were left long enough, there could potentially be a collapse. He testified that in 1991, when Trow reviewed the structure, this possibility was not an immediate concern and such a statement was unwarranted. The building was in an initial state of deterioration, but the situation was manageable. Mr. Dell’Aquila testified that although their report stated that the life of the roof slab would be significantly extended if the proposed procedure was carried out, Trow did not know how much longer the life of the roof would be extended if the owner followed its recommendations.²⁰³

Summer 1991: Algocen’s reaction to Trow’s May report

Algocen doubts viability of Trow’s waterproofing recommendation, asks why it cannot continue dealing with the roof as it had always dealt with it

On June 11, 1991, Messrs. Leistner, Caughill, Liautaud, and Willey (then property maintenance superintendent and previously general manager of the Algo Centre) met at the Algo Centre to discuss the Trow report and view the structure at the same time.

The minutes state that “Trow proposal is not acceptable *carte blanche*.”²⁰⁴ Mr. Leistner indicated in his testimony that this reference was to Algocen’s impression that neither option proposed by Trow was viable. His understanding was that option 1 involved putting too much weight on the roof, while option 2 eliminated the bonded concrete topping, which they understood was necessary for load purposes.²⁰⁵ Rod Caughill testified that it simply meant that they were not prepared to go ahead with the full proposal – there were a lot of questions left unanswered.²⁰⁶

Those present also wished for greater clarification of Trow’s assertion in the report that the life of the deck would be “significantly extended” if the recommended repairs were carried out. Mr. Caughill testified that Algocen wished to know whether it was a question of one year, 10 years, or 20 years.²⁰⁷

The minutes of the meeting show Algocen’s collective understanding that the topping and the precast slabs were supposed to be bonded, except at the expansion joints, according to the HSP design.²⁰⁸ The witnesses who testified to the knowledge and actions of Algocen could not explain why, as of 1991, the company had this belief about the limited capacity of the slabs without the bonded topping, or where or from whom it had obtained this information. Trow was not consulted on this particular question.

Rod Caughill’s first reaction to option 2, which involved the removal of the concrete topping, was that it raised serious concerns because it seemed to be contrary to the design requirements of the building.²⁰⁹ For this reason, Mr. Caughill did not think that Trow’s proposal would work. He said it “flew in the face of what we had believed all along,” namely, that a bonded concrete topping was essential.²¹⁰

Rod Caughill appears never to have approached or questioned Trow in 1991 to obtain its perspective on whether the bonded concrete topping needed to remain in place. He believed that he did question Trow, but could not recall anything in writing and could not specifically recall having told Trow of his understanding, which he gleaned from the structural drawings, that the bonded concrete topping needed to remain in place.²¹¹

Those at the meeting also discussed whether it was feasible simply to repair the concrete and reseal the joints, as opposed to installing a new waterproofing system. The minutes state the following: “If we seal the concrete, bond the de-bonded areas and fill the joints, is this not equal to their #1 proposal? Why can’t we seal the area?”²¹² Despite the ample evidence that showed that sealing the concrete, repairing the debonded areas and filling the joints did not provide a watertight roof, Algocen appeared to want to continue with a system that had proven to be a failed experiment.

It may well be that Algocen was likely prepared to rely on, or accept, any explanation available to justify not proceeding with the very costly expense of installing a membrane. In addition to the cost of installing such a membrane, the work could also lead to business interruptions for the Hotel and Mall, as pointed out by Trow. This business interruption would have resulted in a potential loss of revenue, making Algocen a double loser (repair costs and lost revenues) if it had installed the membrane.

Mr. Dell'Aquila testified that in 1991 he believed that the concrete topping was not a structural requirement. This understanding was based on the structural drawings (S4 in particular), which showed insulation between the concrete topping and the hollow core slabs, and indicated to him that the concrete was not meant to be bonded.²¹³ (Trow knew from its inspection that the insulation was underneath and that the topping was bonded in at least certain areas.) It would have been necessary for Mr. Dell'Aquila to consult a structural engineer to confirm whether his understanding was correct.²¹⁴ Mr. Dell'Aquila testified that, based on what Trow eventually learned about the design of the building in 1995, the waterproofing option it had recommended in 1991, which involved removing the concrete topping, would not in fact have worked.²¹⁵ This evidence was given before Sonia Saari (the chief engineer of Coreslab, supplier of the hollow core slabs) testified that the topping was not required. As I have indicated, it is not necessary that I determine this issue. What is clear is that Algocen was told that a membrane could be applied.

Rod Caughill wrote to Mr. Dell'Aquila on June 27, 1991, asking a series of questions. The questions indicated that Algocen was leaning toward a course of action that involved patching and repairing the roof, or was at least contemplating such a course for the time being. Rod Caughill said Algocen was fairly confident that additional load could not be added to the building; Algocen needed to find something in the interim that might accomplish the same thing. He agreed that, essentially, Algocen was asking whether it could simply carry on doing what it had been doing all along.²¹⁶

July 1991: Trow responds that a full waterproofing system is required; Algocen understands that this option is necessary to maintain structural integrity

Trow wrote back on July 11, 1991, advising Algocen that replacing the debonded concrete and resealing the joints would amount to only a partial repair. A full waterproofing system was required.²¹⁷ It was clear to Rod Caughill that the degradation so far was not significant, but a full waterproofing system was necessary to prevent further degradation and maintain the structural integrity of the deck in the future.²¹⁸

Trow advised Algocen that option 2 would provide the best protection against water and chloride entry and would allow the slabs to last their design life.* Trow provided more particulars about the recommended installation of an asphalt wearing course – among them a 3-millimetre-thick asphaltic protection board over the entire waterproofing membrane, with an additional two layers of asphalt on top, for a total minimum thickness of 100 millimetres with “final thicknesses to be dependent on loading restrictions on the suspended slab.” Joints were then to be formed in the asphalt surface “adjacent to walls, frames of drains and over all primary control joints directly above the supporting steel beams.”²¹⁹

August 1991: Algocen attempts to get answers about roof load capacity from Mr. Kadlec and Coreslab

Although the possibility was discussed, Algocen did not hire other engineers to assess whether Trow's asphalt waterproofing system was viable. Nor did it go back to Trow with specific questions about the loading and the bonded topping.²²⁰ Rod Caughill testified that he felt he could not even entertain the concept of installing the full membrane until he had answers from John J. Kadlec (the engineer at Beta, the firm that carried out the Algo Centre's structural design).²²¹

.....

* Exhibit 420. Mr. Dell'Aquila and Mr. Iamonaco told the Commission that, although Rod Caughill was seeking an estimate as to the life expectancy of the precast panels, this kind of estimate was difficult for engineers to make. Saying that something would last its design life, however, was seen as sufficient information for someone with experience in the construction industry, as Rod Caughill was: Dell'Aquila testimony, March 20, 2013, pp. 2146–8; Iamonaco testimony, March 21, 2013, pp. 2474–6, 2480–1.

On August 14, 1991, Rod Caughill wrote to Mr. Kadlec about “continual problems with the roof deck.”²²² He stated in the letter that his company was “faced with having to make some serious decisions as to methods of repair,” and asked Mr. Kadlec to advise on:

1. The designed load capacities.
2. Maximum allowable loads on the existing structure.
3. How critical are the components in the composite slab.
4. How adverse [*sic*] is any “debonding” of the slab from the precast panels.
5. Can the structural steel members take an additional load – if so, how much?
6. Any other pertinent information you can provide either on the structure itself or on alternate repair methods.²²³

Rod Caughill was looking for quick responses to these questions from Mr. Kadlec, and he communicated with him or attempted to follow up on answers over the next two months.²²⁴

It is unclear what Mr. Kadlec understood about the nature of the problem faced by Algocen. He testified that he had no idea why the information (other than the contents of Rod Caughill’s letter) was being sought and said he was not even aware that the roof had continued to leak all those years. He had not been involved in the installation of the waterproofing system.²²⁵ Furthermore, it was clear from his testimony that Mr. Kadlec’s memory of the events was not good and he had some difficulty expressing himself in English. Mr. Kadlec believed from the content of Mr. Caughill’s letter (and presumably the additional communication from Mr. Caughill) that he should contact Coreslab to further investigate the load capacity and whether additional load could be added. Although the composite slab had not been part of his mandate during the construction phase, he seems to have understood that Algocen was trying to fix the leaks and was wondering whether the installation of a composite system meant additional load could be added.²²⁶

It would take Mr. Kadlec more than a year to respond. He testified that he needed to obtain information from Coreslab about the load capacity of the slabs, and that he had difficulty contacting David Hellyer, the original Coreslab engineer, who had moved to Oklahoma.²²⁷

September 1991: Algocen considers options for Algocen – continue as is, sell it, or abandon it

On September 19, 1991, R.G. Topp, the vice-president of finance of the Algoma Central Corporation, sent a memo to Mr. Leistner:

PRC [Peter Cresswell, the CEO] asked that we brain-storm regarding options for Elliot Lake. I believe they are:

1. Continue operating the property. We are better off doing so as long as it generates positive incremental cash flow (after any negative deferred income taxes).
2. Sell the property. We are better off doing so if the selling price exceeds the discounted future incremental cash flow.
3. Worst case, abandon the property. We might do this if (a) ACP Inc. could do so without retaining any legal liability for the property, (b) it generates negative incremental cash flow and (c) there is no buyer at any price.

The above is elementary. I see no magic. The question is, What does the future hold for Elliot Lake?²²⁸

Mr. Leistner testified that underlying this memorandum were two things – the mine closures in Elliot Lake, which led to uncertainty about its economic outlook; and the national recession at the time, which “hammered the retail sector, very, very bad.”²²⁹ He discussed many times with Mr. Topp and Mr. Cresswell the issue of what to do about the Mall. When asked what, from his point of view, was the upside of keeping the Mall, he testified: “I don’t know if there was an upside to keeping it.”²³⁰

Algocen does not change the method used to deal with the roof

Rod Caughill testified that in 1991, 1992, and 1993, Algocen did nothing to make the repairs recommended by Trow, other than to refine the products used and slightly modify the repair method.²³¹ Despite the warnings it had received from Trow, Algocen did not change the way that it dealt with the roof. As Mr. Caughill testified, “[W]e were maintaining the system as best we could.”²³²

Mr. Snow testified that the techniques used to repair the leaks did not change over the 16 years he worked at the Mall (1989 to 2005), although he thought that, with time, he and his crew got better at pinpointing the source of leaks.²³³ During the Algocen years, he considered that the leaks were under decent control but they “never completely stopped, that’s for sure.”²³⁴

... Algocen did nothing to make the repairs recommended by Trow, other than to refine the products used and slightly modify the repair method. Despite the warnings it had received from Trow, Algocen did not change the way that it dealt with the roof.

Mr. Snow described the procedure in the following way. As soon as the deck was bare of ice and snow in late winter or early spring, the maintenance staff would begin to walk the roof and make temporary repairs to joints where the sealant had come loose. The worst time for leaks was in spring, when the temperatures rose above zero. The snow would melt, and the rain would fall, but it was difficult to do any proper repairs because the water and temperature negatively affected the adhesion of the joint sealant; consequently, any attempts to fix the leaks in spring were temporary. By May or June, as the sealant was applied to bad areas, the number of leaks would start to diminish. Throughout the summer, when conditions were better for sealant adhesion and precipitation decreased, the leaks lessened. In the summer months, the maintenance staff spent 60 percent of their time repairing the roof to protect against leaks. Between August and December, the leaks would not necessarily increase unless there was specific damage somewhere. There was always a leak somewhere if it was raining, but from August to December the number of leaks would diminish to almost none.²³⁵

Rod Caughill testified that, where the job was small (5 to 6 square feet), Mall maintenance staff repaired the debonded concrete identified by Trow; where it was larger and required a concrete pour, outside contractors did the job.²³⁶ It was a labour-intensive process. The concrete required 28 days to cure (harden). During the first few days after the concrete pour, the staff had to keep the concrete moist so it wouldn’t dry too fast and crack. Once the new concrete had cured, it would shrink, resulting in new cracks developing around the perimeter of the new concrete (where new met old). As a precaution to prevent water from entering in this area, these cracks would be sealed. It would appear that the replacement of debonded concrete ended up creating new potential sources for leaks.²³⁷

Over time, Algocen noticed that the V form of the crack-control joints became larger as a result of the need to grind the concrete in the joint (to roughen the surface in order to obtain better adhesion of the sealant in the cracks). On occasion, Algocen had to use backer rods (a foam cylindrical rod) in the cracks to achieve the necessary two-sided, as opposed to three-sided, adhesion of the sealant.* Two-sided adhesion provided greater flexibility, whereas three-sided was more prone to failure and leaks. New cracks would develop, and Algocen would seal those as well.²³⁸

February 1992: Senior executives of Algocen recommend that the company sell the Mall for whatever price the market would bear

On February 3, 1992, Mr. Leistner sent a memo to Mr. Cresswell. He and Mr. Topp recommended selling the Mall for whatever it would fetch on the market. He discussed valuing the Algo Centre on the basis of the expected future cash flow, and then wrote:

Unfortunately, it is difficult for us to put any faith whatsoever in future cash projections when having to consider the effects of the following ‘what-ifs’:

- i) a further significant decrease in population
 - currently at 13,000 with over 60% of potential work force unemployed
 - exodus will occur if jobs become available in other parts of the country
- ii) loss of an anchor tenant
 - a decision to vacate is not necessarily based upon bottom line (e.g. distribution concerns)
- iii) an escalation in uncontrollable operating costs beyond a reasonable level
 - hydro increases already forecasted
 - significant property and business tax increases will most likely occur
- iv) unexpected capital costs
 - roof deck parking concern

Any or all of the above could happen at any time and would have a severe negative impact on future cash flows.

As the upsides (government initiatives and financially assisted projects) are very limited and we would not want to become adversely obligated to any of our agreement holders in the future, it appears warranted to consider the disposition opportunities of the subject property at whatever price the market will bear.[†]

Mr. Leistner insisted during testimony that, during the early 1990s, Algocen was earnestly looking for a repair solution for the roof leaks. The only problem was the company’s opinion at the time that the Trow proposal simply would not work.²³⁹ The period was a difficult one, however, from a financial perspective.

.....

* Rod Caughill testimony, March 19, 2013, pp. 1929–30. Mr. Snow testified that backer rod was used for pretty much all the “main joints,” but it is uncertain what he was referring to. In all likelihood, he meant the butt joints at the short ends of the hollow core slabs: Snow testimony, April 3, 2013, pp. 3972–3.

† Exhibit 427; Exhibit 403; Leistner testimony, March 27, 2013, pp. 3289–93. A draft memo from Mr. Leistner dated July 17, 1992, contains an estimate of the net book value of the Algo Centre as of December 31, 1991, of \$11,937,000. Mr. Leistner explained that this figure was the original cost of the project to date (i.e., the original cost of the building plus all capital additions to date minus booked depreciation). The net book value is based on the expected life of the building and would be zero at the end of the useful economic life of an asset: Leistner testimony, March 27, 2013, pp. 3302–3; Exhibit 403.

Summer–Fall 1992: Algocen recognizes that it has to do something, but does nothing

June meeting: “no question we have to do something (within our financial restrictions)” and must test structure to determine effect of leaks

A meeting was held on June 12, 1992, more than a year after Trow’s first report. In attendance were all the people from Algocen involved in the roof issue: Mr. Leistner, Rod Caughill, Mr. Willey, and William Egan, the company’s comptroller. Notes taken by Mr. Caughill at the meeting record a number of questions that needed to be answered, including whether the topping had to be bonded to the precast slabs in order to achieve the structural load requirement. The notes conclude with the following points, which Mr. Caughill testified were his attempts to reflect the consensus of the group:

- no question we have to do something (within our financial restrictions)
- all options must be evaluated and all non viable options eliminated.
- i.e. membranes, top coats, new roofs, etc.
- before we even look at an option, designed loads and load limits must be determined
- design for load req’ts must be determined
- Kadlec must be forced to respond to our specific questions at “end of the day” will probably require testing and reevaluation of load capabilities of structure because of age and degradation caused by the water leaks²⁴⁰ [Emphasis added.]

Rod Caughill testified that “financial restrictions” related not only to the actual cost of repairs, but also to the additional business costs associated with moving tenants or shutting down business during repairs. This aspect, he said, could potentially have made the repairs non-viable.*

Rod Caughill confirmed that the reference to what would be required at “the end of the day” meant that everyone in attendance agreed that this step needed to be taken in order to move forward, and that a determination of the cumulative effect of the continued water leaks on the structural capacity of the Mall needed to be made.²⁴¹ Mr. Leistner also confirmed that those present at the meeting “believed degradation was occurring, and that over time it would affect it [the Mall]. That was our ongoing structural concern.”²⁴²

Those within the Algocen organization clearly knew that the water leaks could affect, and quite possibly had affected, the structural integrity of the Mall. Despite this knowledge, no new steps were taken to stop the leaks and the structural damage.

In June 1992, while still waiting for answers from Mr. Kadlec and Coreslab, Rod Caughill did look for possible low-weight waterproofing membrane systems. He considered the options of either a Rub-r-Road asphalt-based overlay weighing approximately 18 pounds per square foot (psf) or the use of a Tremco product called TBS 950 as a poured on coating.²⁴³ He agreed that these were both permanent, continuous membrane options, and that a continuous membrane appeared to be “not only our best option but probably our only option at that point.”²⁴⁴ He still had concerns, though, that even a lightweight system would have exceeded the roof’s design limits as he understood them.†

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* Exhibit 609; Rod Caughill testimony, March 13, 2013, pp. 1580–3, 1587–8. See, also, Exhibit 40. It appears that, in this approximate time frame, Rod Caughill also made contact with Mr. Monroe from HSP, who indicated that the concrete topping was necessary from a structural perspective. The Commission was not able to confirm whether Mr. Monroe in fact gave this advice.

† Rod Caughill testimony, March 13, 2013, pp. 1566–7. He did not recall any discussion about strengthening the structural steel, and he considered the option to be financially impractical or unfeasible, given that the building was occupied: Rod Caughill testimony, March 13, 2013, p. 1578.

Algocen considered other options to solve the leaks. One involved putting a roof over the entire parking deck. This idea raised a whole new set of problems. Algocen was certain, based on a review of the structural drawings, that the structural steel was not designed to take the additional load. The company also had concerns about snow load and removal on this type of roof. Important, as well, was that a new roof of this nature would have eliminated at least one-and-one-half levels of the Hotel. Algocen never sought the opinion of an engineer on this option, however.²⁴⁵

Rod Caughill also recalled discussions about banning parking outright on the roof but, because the roof represented such a large portion of the parking facilities, Algocen had nowhere else to put cars. Seventy percent of the Mall's parking was on the rooftop.²⁴⁶

June: Coreslab tells Algocen that concrete topping is theoretically required to provide support to 120 psf

On June 29, 1992, Shahid Shaikh, a professional engineer with Coreslab, wrote to Rod Caughill to say that the concrete topping was placed to act compositely and was necessary in order to safely support a superimposed load of 120 psf:

As per my conversation with you this morning, the parking deck for the above mentioned project was designed using a superimposed live load of 75 pounds per square foot and a superimposed dead load of 45 pounds per square foot. Please note that for the slab to safely support this load, the three inch concrete topping which was placed was to act compositely with the Coreslab.*

As discussed earlier in the Report, all the floors of the Mall were required by design to carry a superimposed load of 120 psf. The information provided by Mr. Shaikh in 1992 meant that the hollow core slabs installed to form the interior floors of the Mall did not meet the design requirements. A composite topping was installed only on the rooftop parking deck, increasing its load capacity to 120 psf, but a similar topping was not installed on any of the floors. Although I make note of this deficiency, ultimately the slabs did not fail. Consequently, I make no further comments or findings on this issue. The evidence of the consultants who inspected the Mall over the years, as detailed throughout the Report, was consistent in stating that the rooftop parking deck could accommodate the application of a thin membrane system. This advice was never followed by any of the owners.

Despite this opinion from Coreslab's engineer, Rod Caughill still wanted an opinion from Mr. Kadlec, the actual design engineer.²⁴⁷

July: Algocen discusses a potential sale and determines the Mall is worth less than it had been accounting for

Mr. Cresswell accepted "as an option" the advice of Mr. Leistner and Mr. Topp to sell the Mall at whatever price the market would bear. Mr. Leistner testified that, although the company had not listed the Mall for sale, it was seriously considering any opportunities that came its way.²⁴⁸

.....

* Exhibit 41; Exhibit 1927. The Commission did not hear evidence from Mr. Shaikh about how he reached this conclusion. A later conversation took place between Rod Caughill and Mr. Shaikh on July 16, 1992, in which Mr. Shaikh apparently provided additional information. First, Mr. Shaikh apparently advised that had 10-inch slabs been used instead of 8-inch, the bonded concrete topping would not have been necessary. Mr. Shaikh also advised that Algoma could remove the 3-inch topping and replace it with a 2-inch topping while achieving the same structural results. One inch of concrete topping was noted to create 12 psf of load. Rod Caughill was not asked about this particular interaction, however, and so it must be interpreted with caution: Exhibit 1835.

In July 1992, Algocen was considering negotiations to sell the Mall to a potential purchaser that had submitted a letter of intent. Mr. Leistner prepared a memo to Mr. Cresswell to provide advice about the potential selling price. Algoma's financial statements for the year ending December 31, 1991, listed a "Net Book Value" (the capital cost of the building and any additions, minus the accumulated depreciation from the date of construction) of \$11,937,000 for the Algo Centre. Mr. Leistner was of the opinion, however, that what he described as "significant concerns with respect to Elliot Lake and specifically the Elliot Lake operations" would have had a negative effect on the actual market value of the building. Those concerns were:

- (i) a further material decrease in population (eg. Rio Algom has contracts only to 1996),
- (ii) the City already has an 80% plus employment rate,
- (iii) the commercial rental competition is already fierce,
- (iv) the loss of an (Woolco) anchor tenant, and
- (v) the possibility of material capital costs expenditures (eg. roofdeck).²⁴⁹

Mr. Leistner advised Mr. Cresswell that sale negotiations should begin at \$7 million, but the company should not expect to receive that much.²⁵⁰

The difference between the value of the Algo Centre as shown on Algoma's financial statements and the actual value, as disclosed by the analysis Mr. Leistner conducted in July 1992, led to the company reducing (or writing down) the building's value in its 1992 financial statements by \$5.1 million. The financial statement indicated that this reduction had been done because "management believes there has been a permanent impairment in the value of these assets."²⁵¹ Mr. Leistner testified that the uncertainty of the situation on the parking deck was part of that analysis.²⁵²

September: Mr. Caughill interprets Mr. Kadlec's long-awaited response to mean that concrete topping is required to provide support to 120 psf

After Mr. Kadlec finally spoke to Mr. Hellyer from Coreslab, he sent the following handwritten note to Rod Caughill at Algocen on September 17, 1992:

Finally, after so many month[s] of trying to get the answer from Coreslab Ltd. – the company [that] designed the precast system I got the answer today: "No more additional load (120 [psf] specified, can not be carried by the planks. However, I would recommend (if we need to add any additional load) to perform a load test."²⁵³ [Underline in original.]

Mr. Kadlec testified that he did not respond to Mr. Caughill's questions about the composite slab or the load capacity of the structural steel because he felt the important question was whether the precast planks could take additional load.²⁵⁴ Mr. Hellyer told him that the planks did not have that capacity.²⁵⁵

Again, I think what they wanted to do is to add concrete, I mean the weight to provide composite system floor. But the answer from them was no, they could not add any more load than what the planks were designed for.²⁵⁶

Rod Caughill interpreted Mr. Kadlec's response as saying that the composite slab was necessary, and the maximum load was 120 psf.²⁵⁷ As he testified, "at that point we knew ... we had a very, very narrow window that we could add to that top deck, very small."²⁵⁸

September: Algocen rejects advice to perform a load test to determine actual capacity of roof deck

A load test is performed by putting a precise load on the roof and measuring the “deflection” (the amount the deck moved below its original position) to determine how much more weight the slab could take. It would determine the actual capacity of the structure to carry a particular load, rather than the theoretical design capacity.²⁵⁹ Mr. Kadlec suggested a load test, because he recalled such a test being done for a tenant of the Mall that required higher strengths than those shown on the drawing.²⁶⁰

Mr. Caughill admitted that, if a load test had been done, Algocen would have learned precisely what the structure, after all the years of water incursion, was able to support – what, three months earlier, he and his colleagues had said would be necessary “at the end of the day.” Despite Trow’s recommendations, and despite Mr. Kadlec’s advice, Algocen never conducted a load test. Nor could Mr. Caughill recall any discussion within the company about having one performed.²⁶¹

Algocen did nothing for three years after getting the 1991 Trow report

Mr. Leistner could not explain why

Mr. Leistner was asked why, having received Trow’s opinion that a membrane was necessary and being uncertain whether it would work, Algocen did not go to another engineer, explain the company’s concerns, and ask for new advice. He did not give a clear answer, despite being given a number of opportunities. He was asked twice whether that decision had anything to do with the financial performance of the Mall. Twice he did not answer the question, saying that “we went to experts and we couldn’t get an answer on how to fix it”²⁶² and “with the economics at the end of the day, well, we didn’t have a viable option to look at.”²⁶³ He gave the following evidence:

- Q. But, but Trow, in ‘91 said, “you have to have a membrane.” You wrote back and said “are you sure?” And they said, “Yes, we’re sure, you have to have a membrane.” And then, as you’ve just told me, for three more years you did not go to an engineer and ask them, “How do we do this? Do we have any other options? We’re not sure whether or not what Trow proposed would work.” That’s what happened, right?
- A. No, I think we – I think we were confident that Trow’s proposals wouldn’t work.
- Q. Then why didn’t you ask another engineer for another proposal?
- A. We didn’t have any idea on what to ask. We would go and ask the same thing and meet the same answer.
- Q. How – I guess I don’t understand that. The engineers were experts in how to fix the problem. You went to an engineering firm, asked them for a solution. They gave you what they felt was a solution. You weren’t sure it would work. My question to you is: Why didn’t you ask somebody else?
- A. We just never did. I can’t answer any better.²⁶⁴

Later, when asked whether discussions about the Algo Centre’s economic outlook affected the decision not to seek additional engineering advice until 1994, Mr. Leistner testified, “I don’t think so.”²⁶⁵

Algocen could afford to fix the roof

Algocen’s decision to neither place a membrane on the parking deck as suggested by Trow in May 1991 nor seek other advice was not a result of the company’s having insufficient funds available. Mr. Leistner testified that, if the company wanted to spend money in the amount suggested by Trow, it could have.²⁶⁶

There is no doubt that Mr. Leistner's evidence was accurate. The financial statements of the consolidated group of companies owned by Algoma Central Corporation showed net income in 1991 of \$3,346,000; in 1992 of \$7,181,000; in 1993 of \$6,861,000; and in 1994 of \$14,438,000. Total assets at December 31, 1994, had a value of \$232,318,000, with long-term debt of only \$30,163,000.²⁶⁷

Trow conducts a second condition assessment in 1994

Trow is asked to compare the conditions, including structural integrity, with what it found in 1991

Algocen continued to have concerns about the condition of the parking deck, and in April 1994 the company wrote to Trow to request another inspection report.²⁶⁸ Algocen wished to understand what, if anything, had changed between 1991 and 1994, and whether there had been further deterioration of the building. It also wanted to be aware of any future impact on structural integrity.²⁶⁹

Algocen requested that the scope of work include tests to determine the extent of degradation of the pre-stressed cables in the hollow core slabs, using previously tested areas for comparison. Cores were to be removed down to the steel beams in order to determine the extent of rust and deterioration; and a visual inspection of structural members (both steel and concrete) was to be conducted, with particular attention given to areas noted in 1991. Algocen also wanted a comparison of chloride with the 1991 levels.²⁷⁰ Algocen was seeking to assess if and how the deterioration of the building, including the rust, had progressed between 1991 and 1994.²⁷¹

Algocen is warned that corrosion will accelerate exponentially if leaks are not treated – and does not change the way it deals with the leak

Trow conducted its on-site inspection of the building on August 23 and 24, 1994.²⁷² This time, both Mr. Iamonaco and Mr. Dell'Aquila attended on site, and Mr. Caughill was present with them during at least part of that time. A note prepared by Mr. Caughill after the inspection stated that

Iamonaco does not believe that we have a structural problem yet but he cautions that the corrosion seen will accelerate exponentially if the leakage is not treated.*

Mr. Caughill testified that he understood Mr. Iamonaco to be indicating that, if Algocen did not stop the water from coming in, there would be a potential exponential increase in the effects of the rust on the structure. He understood that putting a membrane in place was "pretty much our only option that was available to us."²⁷³

Mr. Leistner was told of Mr. Iamonaco's comments. He testified that he understood from them that "we had to deal with the leakage issue as much as possible." He also understood that the way to deal with the leakage was to put a membrane in place.²⁷⁴

Despite the understanding of both men, between that time and when it sold the Mall in 1999, the company did not change what it had been doing on the roof.²⁷⁵

City continues to receive reports of leaks and does nothing

On September 12, 1994, not long after Trow's August 23 and 24 site visits, Ms. Fazekas wrote to Mr. Bauthus to complain that tiles were dangling from the ceiling in the children's section of the library and the t-bars were

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* Exhibit 611. The words are quoted from Mr. Caughill's document and cannot be attributed word for word to Mr. Iamonaco. Mr. Iamonaco, for his part, could not recall the details of the conversation and whether he in fact used the word "exponentially": Iamonaco testimony, March 21, 2013, pp. 2487–8.

loose. She worried that the ceiling tile apparatus may not have been properly installed and that the whole ceiling was in jeopardy. As she noted in her letter, she even called Mr. Pigeau directly:

My concern is that the rest of the ceiling is similarly attached and the whole ceiling is in jeopardy. When requested to determine the safety of the rest of the ceiling, the mall manager and maintenance staff rushed to tell me not to panic. I then called the City's Chief Building Officer for an opinion on the subject. Although he did visit the site to ensure that the ceiling damage was fixed, he did not share my concerns regarding the rest of the ceiling.²⁷⁶

Mr. Pigeau met with the librarian and made notes on a copy of the letter found in the City's files: "Barb Fazekas met with me to thank me for a quick response on the Algo Mall ... Met with Fred [Bauthus] and advised only that the gridline wall is a problem and that Algo Mall will repair if City agreed to lower catch basin on their property."²⁷⁷

Ms. Fazekas testified that the false ceiling was coming loose in this manner because of moisture that, as far as she could tell, was caused by the ongoing leaks. Her evidence was that she brought up the issue of the leaks with both Mr. Pigeau and Mr. Liautaud.²⁷⁸

Mr. Pigeau only reluctantly agreed that this ceiling tile issue related to the leaks. He recalled that the ceiling damage was fixed, and he did not pursue the matter further.²⁷⁹

Mr. Bauthus recalled this issue. The letter came across his desk and he gave it to Mr. Pigeau to act on. He, too, recalled that the ceiling tiles were fixed, but also agreed that this repair did not solve the ongoing issue with leaks; nor could he recall giving any direction to Mr. Pigeau.²⁸⁰

Mr. Pigeau testified that he was generally aware that the Mall was leaking during this time frame and that Mall managers were trying to remedy the problem. He knew Algocen had hired personnel to try to seal the roof itself and that the maintenance staff did a lot of work on the roof. He saw them up there from time to time, "applying a waterproofing compound of some sort, over top of areas that needed it."²⁸¹ He also knew that the Mall had hired people to do grouting between the slabs and the grates and wherever the concrete assembly might be failing or spalling, and that at some point in time the staff was working on the expansion joints.²⁸² However, based on the work he saw taking place on the roof, he did not ever require a building permit from Algocen.²⁸³

Throughout his tenure, Mr. Pigeau said, the mayor, council, or City staff never directed him on how to do his job and never interfered with the performance of his duties.²⁸⁴

Others within the City also had knowledge of the leaks at the Mall. For example, Larry Burling, the City clerk, described a conversation he had with Ms. Fazekas, likely at some point in the 1990s, although it may have been later. She spoke of the leakage problem at the Library, and Mr. Burling's advice was that the Library should simply rearrange the collections and computer systems to places that did not leak. Ms. Fazekas indicated to him that this solution was not possible because the staff never knew where the leaks would come in. Mr. Burling somehow took this remark as a sign that the Mall was working at fixing the problem:

So they are making some progress because they are plugging some things but obviously some new ones are occurring over time. So I wouldn't say that they didn't have some success. They took care of the immediate leaks, but new ones kept presenting themselves.²⁸⁵

Mr. Burling also agreed that the leaks at the Mall were common knowledge in the community but said that other than his discussion with the librarian, it was not something that was discussed at city hall or otherwise brought to the attention of City employees.²⁸⁶

Trow report of November 10, 1994

Overview: Excessive leakage, rusted steel beams – corrosion will continue

On November 10, 1994, Trow presented its report, marked “draft” and dated November 9, 1994. The abstract stated

[t]he soffit of the suspended roof slab was generally in good condition but indicated evidence of excessive leakage through the joints of the precast hollow slabs above the mall level. The steel beams were noted to be rusted at locations where evidence of leakage was observed. Some water stains were also noted on the soffit of the pedestrian walkway slabs. Some metal pans and pails were noted above the false ceiling in the stores to divert the water leakage.

The structural steel members are sound with some surface corrosion. The chloride ion content is generally higher in the concrete topping and contamination of the precast slab is at its initial stage. Corrosion of the embedded reinforcement can be expected to continue at all areas of leakage.²⁸⁷

Photographs from the 1994 inspection show increased leaks and damage since the 1991 survey

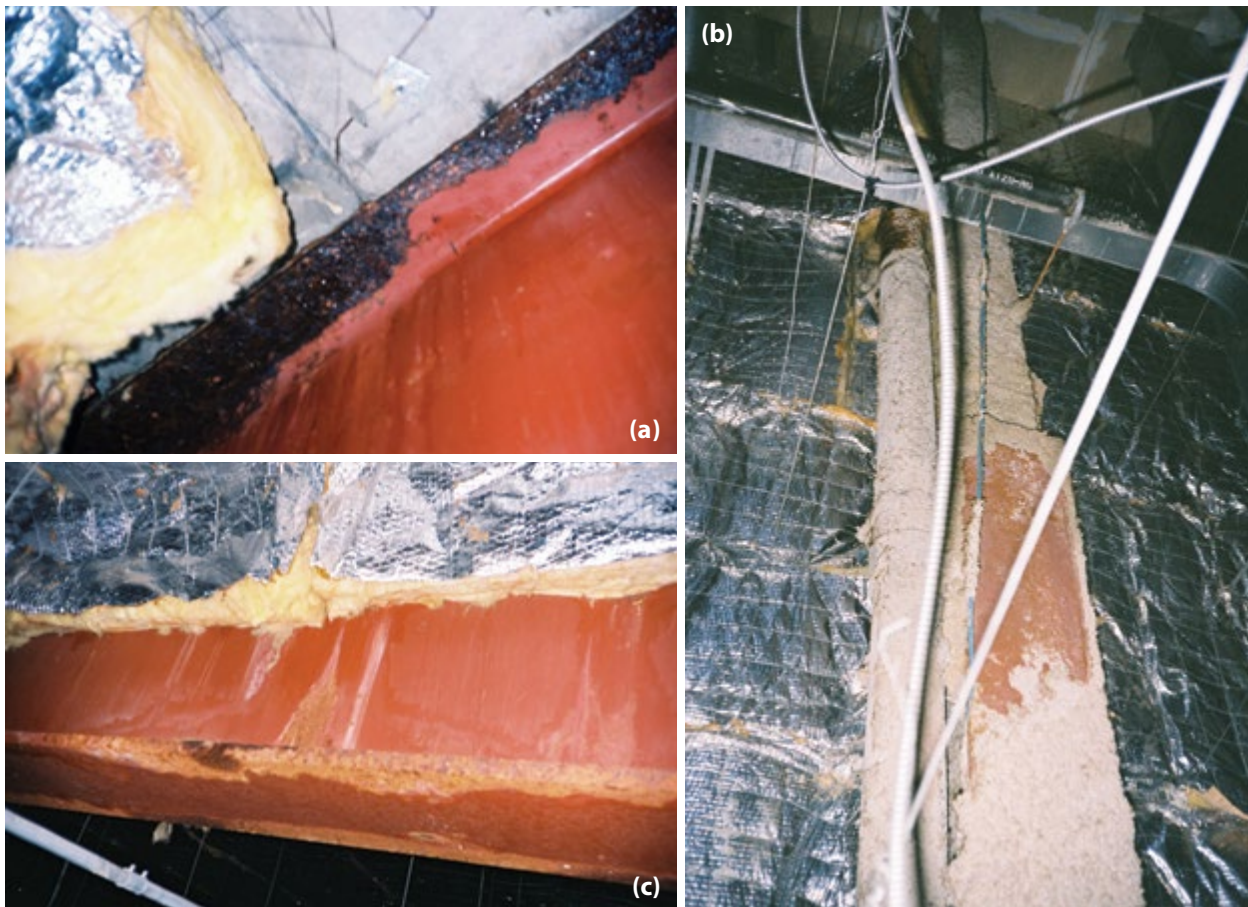


Figure 1.5.4 (a) evidence of corrosion on the top flange of a beam; (b) missing fireproofing on a column; and (c) evidence of corrosion on the bottom flange of a beam.

Source Exhibits 1119, 3104 and 3127

As it had done in its 1991 report, Trow included in its 1994 report, as an appendix, a drawing of the parking level showing the condition of the soffit. For comparison purposes, the drawing also included the observations that had been made in 1991. The legend on the 1994 drawing includes symbols for broken false-ceiling tracks, missing tiles, reported leaks, stained fixtures, and new stains on the false ceilings. Mr. Dell'Aquila considered that there was only a bit more rusting on the beams in 1994 than in 1991. He considered that the 1994 drawing, when compared to 1991, showed even greater evidence of widespread leakage. He said the evidence of leakage in 1994 is "at least double, if not more than it was in '91."²⁸⁸

Concrete topping debonded from slabs; concrete in slabs deteriorated with contamination in its initial stage

Trow took nine core samples, all through the concrete topping. Some drilled deeper into the precast slabs so Trow could look at chloride ion content and the condition of the pre-stressed strands in the slabs and the condition of the top surface of the supporting beams.²⁸⁹

Trow found the concrete topping surface to be in generally good condition, but found deterioration of the concrete farther down in the cores. The majority of the cores still revealed little or no bond between the concrete topping and the top surface of the precast hollow core slabs. The wire mesh in the concrete topping was generally rust-free, with one exception: two of the cores revealed rusted pre-stressed strands – located in the grout between the precast slabs. The two full-depth core samples revealed surface rusting on the top flange of the steel beams encountered.*

The chloride ion content was generally higher in the concrete topping, and contamination of the precast slab was said to be in its initial stage. The report noted that corrosion of the embedded reinforcement "can be expected to continue at all areas of leakage"²⁹⁰ and that the concrete topping would continue to deteriorate as a result of the high chloride content and the effects of freeze–thaw action. The fact that the chlorides had begun to contaminate deeper into the precast slabs "could likely cause rusting of the pre-stressing strands in the slabs" in the areas of leakage.²⁹¹

Slabs and beams – evidence of excessive leakage, fireproofing missing from beams, beams rusted but structurally sound, no reference to connections

In addition to examining the cores, Trow once again conducted a visual survey of the soffit by doing a walk-through of stores in the Mall, with a focus on those with a history of water-leakage problems and previously documented leaks. At selected accessible and suspect areas in both previously viewed areas and new locations, Trow exposed the underside of the precast slabs by removing suspended ceiling panels in order to review the condition of the concrete and structural steel members.[†]

The soffit of the suspended roof slab was generally in good condition but showed evidence of excessive leakage through the joints between the hollow core slabs. Metal pans and pails were noted above the false ceilings in the stores to divert the water leakage.²⁹² As in its previous report, Trow observed numerous water stains on the false ceilings and rusted tracks throughout the Mall. By removing some of those tiles, Trow was able to see that the false-ceiling tiles were water stained in areas coinciding with the joints between the hollow core slabs above. Active leaks were noted, and ceiling tiles were seen to be bulging as a result of water leakage. Some drain pipes and metal conduits also had rust.²⁹³

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* Exhibit 461, pp. 978–9. Trow found the concrete topping thickness to range from 35 to 80 millimetres, which is in keeping with the original design drawings.

† Exhibit 461, p. 976. Mr. Dell'Aquila explained in testimony that they used a very tall ladder to get up above the ceiling tiles and look at the beams and connections: Dell'Aquila testimony, March 20, 2013, pp. 2180–1.

Water stains were noted on the soffit of the pedestrian walkway slabs.²⁹⁴

The top and bottom flanges of the steel beams were observed to be rusted at locations where there was evidence of leakage. Again, fireproofing was missing as a result of water damage. Insulation foil and metal clips showed rusting.²⁹⁵ The steel beams were nevertheless found to be sound with “some surface corrosion.”²⁹⁶ The bottom flange of one beam, considered to be in the worst condition of the rusted beams observed, was measured by removing the scaled rust. The thickness of the bottom flange was measured to be 18 millimetres.*

The report did not contain any reference to the connections between the steel beams and the columns. Mr. Dell’Aquila testified that connections were part of the structural members that Trow was required to inspect as set out in the scope of its work. It was his evidence that, while the report did not mention the connections, some photographs of connections were in the file.²⁹⁷

Mr. Dell’Aquila explained that neither he nor Mr. Iamonaco was a structural engineer. Typically, if, on a job, they saw something related to the structure, the loss of section of beams and connections, or otherwise, they would bring it to the attention of a structural engineer. In both 1991 and 1994, they did not believe the conditions warranted referring the matter to a structural engineer.†

Conclusion: All deterioration will increase with continued leaks

Despite the strong words of warning given orally during the site visit, Trow tempered its language in the written report and simply noted in the conclusions of its report that the deterioration of the soffit would increase (as opposed to “increase exponentially”) if water and salt penetration continued:

The soffit of the precast hollow core structural slab exhibits numerous signs of leakage, mainly through the control joints between the precast panels. Water and salt penetration through joints will cause deterioration of the concrete, prestressed cables, steel beams, sprayed on fireproofing for steel beam, false ceiling tiles and electrical conduits to increase.²⁹⁸

Recommendation for a structural review

Inconsistencies on issue of necessity of bonding of concrete topping noted

In its 1994 report, Trow addressed the issue of whether the concrete topping must be bonded to the precast slabs. It noted that Mr. Caughill had asked whether such bonding was a requirement of the building’s structural design. Structural drawings showed insulation between the top of the core slabs and the topping, meaning that the two elements were not required to be bonded. Architectural drawings showed insulation under the slabs, suggesting that the concrete topping would be bonded to the top of the slabs. An engineer at Coreslab had advised Trow that the topping did have to be bonded.²⁹⁹

.....

* Exhibit 461, p. 978. Mr. Dell’Aquila clarified that the assessment that the steel members were sound with “some surface corrosion” was made on a visual basis, with spot-checking of the worst locations. Only the one location was physically measured: Dell’Aquila testimony, March 20, 2013, p. 2168. Trow did not measure the surface corrosion at the connection but instead on the beam flange because that was where the rusting was at its worst: Dell’Aquila testimony, March 21, 2013, p. 2182.

† Dell’Aquila testimony, March 21, 2013, pp. 2233–4; Iamonaco testimony, March 21, 2013, pp. 2464–5. Mr. Dell’Aquila had encountered situations of that nature during his career. At one mall, for example, safety risks related to the structure were of concern. Structural engineers were brought in and the owner advised of the potential safety risk. The engineers proposed shoring until appropriate repairs could be made: Dell’Aquila testimony, March 20, 2013, pp. 2235–6. Mr. Iamonaco gave similar evidence. In situations where Trow deemed that review by a structural engineer was necessary, he stated, Trow would call in the engineer to review the condition before writing the report – the company would not simply produce a report saying that further review by a structural engineer was necessary: Iamonaco testimony, March 21, 2013, pp. 2467–8.

Trow recommended that a structural review and analysis be carried out to determine whether the concrete topping is required and the capacity of the roof slab, and to provide the necessary data to allow discussion of the various options for placement of a waterproofing system.³⁰⁰ Trow suggested that the structural review be done as soon as possible, citing structural concerns related to the debonded concrete:

As was noted in Trow's 1991 condition survey report, approximately 10% of the concrete topping is debonded, predominantly at the caulked control joint locations. Assuming that the percent of debonded concrete topping has not increased substantially, we do not feel that the percentage of previously noted debonded topping produces an immediate concern. However, it should be noted that, with time, the amount of debonding is likely to increase, thus becoming a structural concern.³⁰¹

Algocen attempts, unsuccessfully, to have the report changed to remove a reference to the necessity for a structural review

The abstract to the draft report provided on November 9, 1994, contained the following statement summarizing Trow's advice:

A structural review and analysis is recommended to determine the capacity of the roof slab and to provide the necessary data in order to discuss the various options for the placement of the waterproofing system.³⁰²

On December 5, 1994, Rod Caughill wrote to Mr. Dell'Aquila:

We have reviewed the report for the Algo Centre (as submitted) and we offer the following:

- 1) in the Abstract the statement is made "a structural review and analysis is recommended ... system." This statement seems contrary to the objectives as stated further into the report. This statement should be removed.³⁰³

Mr. Caughill testified that Mr. Leistner asked that he make this request simply because Algocen had not asked for a structural review.³⁰⁴ Mr. Leistner gave similar evidence. He agreed, however, that the suggestion was completely in line with what he had been thinking for some time, at least since the meeting of June 1992, noting that "at the end of the day" the effect of the water on the structure had to be determined.³⁰⁵

The request did not succeed. Trow refused to change the report. On January 31, 1995, Mr. Dell'Aquila wrote Mr. Caughill:

The purpose for the structural review and analysis is to confirm whether the concrete topping is required since there are several inconsistencies in the original drawings on this project and in addition to further recommend possible modifications in order to determine what type of waterproofing system can be installed (i.e. thick or thin) depending on the loading the slab can take due to the waterproofing system.³⁰⁶

That letter attached a copy of the relevant page from the final version of the report. Trow italicized its redraft of the paragraph about which Algocen had complained. It read:

A structural review and analysis is recommended to determine whether the concrete topping is required and to provide the necessary data in order to discuss the various options for the placement of a new waterproofing system specifically with respect to the allowable additional load the slab can take due to the waterproofing system.³⁰⁷

NORR criticism of Trow 1994 report: Not enough attention to structural steel

As noted earlier, following the collapse of the Mall, the Ontario Provincial Police retained NORR Limited to carry out a forensic investigation into the causes. In its report, NORR found that Trow did not pay enough attention to the steel and commented as follows: "This report appears to have been concentrated almost solely on the condition of the precast hollow core panels."³⁰⁸ Dr. Hassan Saffarini, on NORR's panel of engineers, was challenged on this statement, and he responded: "[I]f one reads the reports, this is the impression that you would come out with." Dr. Saffarini maintained his view that the steel should have been given a higher priority.³⁰⁹

The 1994 Trow report was not the only consultant's report to have concentrated almost exclusively on the condition of the hollow core precast slabs. Reports obtained later also seemed to focus on the condition of the concrete. I find it difficult to understand the professional fixation with concrete deterioration (and precast hollow core slabs particularly) to the exclusion of the corrosive effects of water and chlorides on steel; explanations for this unfortunate situation come to mind, but are (and should remain) in the realm of the speculative, absent more conclusive evidence.

Algocen's mixed reaction to the Trow 1994 report – relief that deterioration not worse, but recognition that structural audit still needed

Rod Caughill testified that Algocen had mixed reactions to this second Trow report. On the one hand, there was relief that things had not become rapidly worse. The steel in the worst area of leakage had shown only minor deterioration. He did note, however, that the concrete topping had higher salt content than anticipated, and that the report was consistent with the warning given by Mr. Iamono during the site visit that, although the roof was not yet a problem, the corrosion would increase exponentially if the leakage was not fixed.³¹⁰

There is no doubt Algocen understood that the potential existed for future structural issues if the situation was left unchanged and that the building would not last indefinitely without costly repairs.³¹¹ Mr. Leistner wrote a memo for Algocen's CEO, Mr. Cresswell, on November 28, 1994. In it, he expresses concern, flowing specifically from Trow's recent advice, about the long-term structural integrity of the parking deck due to leaks: "The subject water leakage has caused concerns with both the disintegration of concrete and the corrosion of structural steel. A structural audit should be performed . . ."³¹² In his testimony before me, Mr. Leistner confirmed that he recommended the structural audit because he wanted to know if the leaks had shortened the expected life.³¹³ In that memorandum, Mr. Leistner also wrote: In any event it may be prudent to actively attempt to dispose of the development at a realistic price.³¹⁴

On December 20, 1994, Mr. Cresswell sent a memorandum to Algoma Central's board of directors. He wrote that he had been asked by the chairman of the board to review the company's investment in Elliot Lake. He recommended a thorough structural audit

of our physical assets in Elliot Lake [with the handwritten addition by Mr. Leistner of the words "focusing on the parking deck"], over the course of 1995 to determine its integrity and possible future maintenance costs. As well, we will more aggressively determine the marketability of the complex at least to better establish its value.³¹⁵

Mr. Leistner testified that he received approval from the board for that proposed course of action. Unfortunately, as I will describe below, no such structural audit was ever obtained by Algocen.

February 1995: Algocen meets with consultant about selling the Mall

On February 28, 1995, Mr. Cresswell and Mr. Leistner met with a consultant (at Mr. Cresswell’s direction) and discussed possible options for Algocen to deal with the Mall. A memo to file prepared by Mr. Leistner indicates that they considered selling (at a fair price, but not prepared to give it away), leasing, accepting a vendor-take-back mortgage in a sale, and turning the Mall into a limited partnership. The note stated that an option that “appears worthwhile” was to try to improve lease terms to “present a strong long-term value proposition.” The note makes no mention of spending money on fixing the roof.³¹⁶ In pricing the Algo Centre, Algocen continued to have concerns about the Elliot Lake market as well as the parking deck and its potential degradation.³¹⁷

September 1995: Ministry of Labour conducts inspection after complaint

The *Occupational Health and Safety Act*, enforced by the Ministry of Labour, is the governing framework for workplace safety in Ontario

In 1995, the Ministry of Labour conducted two inspections at the Library in relation to parking deck leaks. It is therefore necessary, at this stage of the Report, to explain the role of the Ministry of Labour in ensuring workplace safety in Ontario. The Commission heard from two senior officials on this topic. The first was Sophie Dennis, who was the assistant deputy minister, Operations Division.³¹⁸ The second was Roger Jeffreys, who held the position of provincial engineer, but had worked previously as a health and safety inspector.³¹⁹ The ministry also provided the Commission with an overview paper on the *Occupational Health and Safety Act* and the roles and responsibilities of industrial inspectors.³²⁰

Workplace health and safety in Ontario is governed by the *Occupational Health and Safety Act*³²¹ and the regulations made pursuant to it.* Workplaces that fall under the Act’s definition of “industrial establishment” (which includes offices, factories, and retail operations such as the Algo Mall) are governed by Regulation 851 – Industrial Establishments.³²²

The Ministry of Labour administers and enforces the *Occupational Health and Safety Act*. It also employs and trains the inspectors who conduct inspections in Ontario’s workplaces.

The “internal responsibility system” – the foundation of workplace safety in the province

The foundation of the *Occupational Health and Safety Act* is what Ministry of Labour witnesses referred to as the internal responsibility system, a concept where workplace parties have a day-to-day responsibility for health and safety.³²³ The intent is that problems in the workplace be reported to the employer and rectified, to the greatest extent possible, independently of Ministry of Labour inspections.³²⁴

A key component of this system is the Act’s requirement that workplaces of a certain size have either a health and safety representative or a Joint Health and Safety Committee. Workplaces with six to 19 employees must have a health and safety representative. Workplaces with 20 to 49 employees must have a Joint Health and Safety Committee composed of at least one worker and one management representative. Workplaces of 50 or more employees must have a Joint Health and Safety Committee composed of at least four members, two from management and two from non-management staff. Certain members must be certified. Certification entails basic and specific training on workplace safety.³²⁵

.....

* The exception is for workplaces falling under federal jurisdiction.

If the workplace has only a health and safety representative, as opposed to a committee, that person must inspect the workplace once each month and report back to the employer with his or her findings.³²⁶ During a visit, a Ministry of Labour inspector would expect to see some record of these monthly inspections.³²⁷

Where the workplace is large enough to require a Joint Health and Safety Committee, the committee must meet once every three months and keep minutes of the meetings. The physical condition of the workplace must also be inspected once a month.³²⁸ Consulting minutes and monthly inspection notes, along with questioning the health and safety representatives or committee members, helps ministry inspectors ensure compliance with the Act and gather information about safety concerns.³²⁹

The Joint Health and Safety Committee has a series of powers under the Act, including the power to make recommendations, to both the employer and workers, for improving health and safety.³³⁰ The employer does not have a duty to report a health and safety concern to the ministry³³¹ but is ultimately responsible for fixing identified health and safety concerns or providing reasons for not doing so.³³² If problems are not remedied, a visiting inspector who consults the inspection reports and/or minutes of committee meetings and observes a lack of action may require the employer to take further measures to address the issue.³³³

Similarly, no obligation is placed in the Act on Joint Health and Safety committees, health and safety representatives, or workers to contact the Ministry of Labour when faced with a health and safety concern. Again, the expectation is that a well-functioning internal responsibility system will achieve the necessary results without having to involve the ministry.³³⁴

The Ministry of Labour imposes a duty on the employer to ensure the structural integrity of the workplace

Pursuant to the *Occupational Health and Safety Act* and Regulation 851, the employer has a specific obligation to ensure that a workplace is structurally sound.

Section 25 of the Act requires the employer to ensure that a workplace is “capable of supporting any loads that may be applied to it” as determined by the *Building Code*, where applicable. Section 120 of Regulation 851 states that the *Building Code* applies to industrial establishments with respect to structural adequacy,³³⁵ and section 72 of Regulation 851 states that where there is structural damage such that a collapse of any or all of the structure is likely to occur and cause injury to a worker, the building must be braced and shored, or access to the area must be prevented.³³⁶

As such, a violation of the *Building Code* may amount to a violation of the *Occupational Health and Safety Act* and may lead to orders from the Ministry of Labour to rectify the situation.³³⁷ (The next main section of this chapter sets out some of the types of orders that might be made in this situation.) The requirement that a workplace building be able to safely support any applicable loads has been a requirement of the *Occupational Health and Safety Act* since it came into force in 1979.³³⁸

Ministry of Labour inspectors: Few in number in relation to workplaces, but having the power to remedy structural and other deficiencies

The Ministry of Labour performs proactive, unannounced inspections based on certain criteria and also performs reactive investigations in response to a particular complaint.³³⁹ If, during an inspection, the ministry determines there has been a contravention of the Act or regulations, an inspector may enforce compliance using compliance orders and/or commence a regulatory prosecution under the *Provincial Offences Act*.³⁴⁰

Ministry of Labour inspectors tend to specialize in one of four sectors: mining, construction, industrial, and health care.³⁴¹ There are approximately 430 inspectors in Ontario, responsible for more than 200,000 workplaces and five to six million employees in the province. Approximately 180 of the 430 inspectors are industrial inspectors.³⁴²

With so many workplaces and workers compared to inspectors, the ministry must take a risk-based approach to the allocation of resources. It therefore makes its decisions on where to inspect proactively on the basis of the kind of work being done, workplace size, previous history with respect to non-compliance, and injury rates.³⁴³ The ministry also organizes “blitzes” (focused sets of inspections) of certain types of workplaces to target specific hazards, such as the high potential for injury among young workers during the first three months of employment.³⁴⁴

The ministry considers the retail sector to be a low risk sector. The large national retail operations, in particular, are considered very low risk because they typically have detailed occupational health and safety policies and practices and active Joint Health and Safety committees. The retail sector is therefore not visited as often as high-risk workplaces. The ministry never designated the Algo Mall, in particular, as high priority.³⁴⁵

The *Occupational Health and Safety Act* sets out the powers of inspectors in section 54. These include the power to

- enter into any workplace at any time without warrant or notice (section 54(1)(a));
- require the production of any drawings or reports, which would include structural drawings (section 54(1)(c));³⁴⁶
- ask anyone at the workplace questions that may be relevant to the inspection or investigation (section 54(1)(h)); and
- require the owner to provide a report from an engineer on the structural capacity of a building where there are concerns about the structural adequacy of a workplace (section 54(1)(m)).³⁴⁷

A typical Ministry of Labour inspection, according to Ms. Dennis, would start with the inspector introducing himself or herself to the supervisor or employer. The inspector would next determine the number of workers in the workplace, and ask to speak to the Health and Safety Committee members, if they exist, to get a sense of the workplace’s internal responsibility system. The inspector would also ask to view the minutes of committee meetings and ask about unresolved issues before conducting a site inspection and drafting a report that would include any orders issued.³⁴⁸

These individual steps are not mandatory. For example, as Ms. Dennis made clear, inspectors are not under a specific obligation to consult the minutes of the Health and Safety Committee during an inspection.³⁴⁹

If the inspector observes something that contravenes the Act during an inspection, he or she can make a variety of orders. The inspector can ask that the contravention be remedied immediately (a forthwith order) or by a specific date.³⁵⁰ If the inspector finds, for example, that a workplace that should have a Health and Safety representative does not have one, an order can be issued pursuant to section 8 of the Act to ensure one is appointed.³⁵¹

Industrial inspectors do not receive specific training on the *Building Code*, other than to understand how it correlates with the Act and Regulation. For example, an inspector would not be trained on the specific *Building Code* requirement that a building be watertight.³⁵² In this vein, the industrial inspectors do not receive specialized training on structural issues, other than what Ms. Dennis referred to as “hazard identification and what to do if

they see something of question.”³⁵³ She indicated that inspectors were “not the experts in the Building Code,” but needed to be alert to *Building Code* issues.³⁵⁴ However, if he or she believes that a potential structural hazard exists (engaging the sections related to structural stability cited above), the inspector may use section 54(1)(m) to require an owner, constructor, or employer to obtain a professional engineer’s report stating what the load limits of a workplace are and that the workplace can support the necessary loads.³⁵⁵

The Ministry of Labour also employs regional engineers, able to assist inspectors as needed. There are approximately 18 regional engineers (including some structural engineers) distributed throughout the province, with one based in Sudbury covering Northern Ontario.³⁵⁶ There is one provincial engineer, whose role includes coordinating the activities of the regional engineers. Inspectors can consult regional engineers, including for such expertise as assessing any engineering report produced. In some cases, the engineer may accompany an inspector during a visit where, for example, the inspector has concerns about structural issues in a workplace.* Ministry of Labour inspectors may also refer an issue involving a suspected *Building Code* violation to a municipal building inspector.†

In a work environment such as the Algo Mall, where the owner employs staff on site and the tenants employ staff within the outlets, an inspector with structural or other concerns can decide whether to issue an order to an employer within the Mall or to the Mall owner itself, depending on the nature and location of the hazard.³⁵⁷

Complaints are supposed to be processed centrally

Anyone from a worker to a member of the general public can make a complaint by phone or in writing (including e-mail) to the Ministry of Labour. The ministry also acts on anonymous complaints,³⁵⁸ though it has identified them as potentially problematic and suspect from the outset, as seen in the following passage from an overview of the *Occupational Health and Safety Act* prepared for this Inquiry by ministry staff:

Complaints may be made anonymously, which provides a particular challenge for Ministry of Labour inspectors. Many such complaints do not turn out to be legitimate, but instead arise from a workplace or personal grievance. Further, many of the complaints that are legitimate often lack detailed and specific information which would allow an inspector to target and focus his or her response and inspection activities.³⁵⁹

Complaints are generally made to the ministry’s Health and Safety contact centre or directly through the ministry’s website.³⁶⁰ The complaint becomes an “event” that is dispatched from the contact centre to the regional or local office. That office, with no additional information, makes its own assessment of the urgency of the complaint.³⁶¹ It is possible for Ministry of Labour inspectors, before inspecting a workplace, to verify if the workplace has had prior complaints.³⁶²

.....

* Exhibit 4125, pp. 011–12; Dennis testimony, April 30, 2013, p. 7483; Dennis testimony, May 1, 2013, p. 7575; Jeffreys testimony, October 3, 2013, pp. 28039–42. The Ministry of Labour also has engineers specializing in the electrical, mechanical, chemical, and mining fields. In 2007, the ministry had only three structural engineers on staff for the entire province: Jeffreys testimony, October 3, 2013, pp. 28039–41.

† Exhibit 4125, pp. 011–12; Dennis testimony, May 1, 2013, p. 7739. Nothing of this nature occurred during the history of the Algo Mall. The Ministry of Labour is currently reviewing this notion of co-operation between the ministry and building departments. Ms. Dennis’s view is that the potential exists for better and closer collaboration, such as creating a situation where municipal inspectors in the field advise ministry inspectors of potential health and safety hazards, and vice versa: Dennis testimony, May 1, 2013, pp. 7738–9, 7721–4.

In 1995, the Ministry of Labour had an office in the Mall

In 1995, the local Ministry of Labour offices were located at the Mall.³⁶³ Mr. Bauthus mentioned this fact during his testimony, suggesting that as a result of this presence the ministry was aware of the leaks:

Mr. Regan or the other Ministry of Labour officials were aware of the leaks in the mall, not only in the library, I would assume ... I would have to think that if he had some concerns ... with regard to safety or structural safety, because of water infiltration, he would have raised those issues, either through his own auspices or brought them to the attention of the appropriate officials at City Hall, either that being myself or the CBO.³⁶⁴

The local inspector was Ralph Regan, an Elliot Lake resident since 1957. Mr. Regan began working for the Ministry of Labour in 1981 and became an industrial inspector (hence, covering retail) in 1992 or 1993. Before that, he had inspected only mines.³⁶⁵

September 22, 1995: Ministry of Labour conducts inspection as a result of complaints of sickness from mould

Inspector sees evidence of leaking

On September 22, 1995, in response to employee complaints of nausea, fatigue, and sickness from suspected mould,³⁶⁶ Mr. Regan met Ms. Fazekas at the Library, accompanied by Phil Butler and Debbie Quinn, co-chairs of the City's Health and Safety Committee. This was the first time, from the Commission's analysis, that the Ministry of Labour had conducted an inspection of the Mall directly related to the parking deck leaks. The person who actually carried out the detailed inspection was Dr. Walter Woychuk, a Ministry of Labour medical consultant from Sudbury.³⁶⁷ Mr. Regan stayed for only a short time, but long enough for Ms. Fazekas to show him the stained ceiling tiles. He agreed in testimony that the stained tiles were an indication that water was coming in from the ceiling.³⁶⁸

Ministry medical consultant finds no mould, but significant potential for mould growth and suggests leaks should be stopped

Dr. Woychuk inspected the Library and issued a report on September 27, 1995, copied to Mr. Regan and the Ministry of Labour's district manager.³⁶⁹ Mr. Regan said in testimony that he did not recall receiving the report.³⁷⁰

Dr. Woychuk's report described the methods used at the Library to deal with the leaks, such as plastic sheets and large buckets to catch water. He also counted out 47 water-stained ceiling tiles throughout the Library, "which would tend to confirm ceiling leakage."³⁷¹ He did not find actual mould in the Library, but said the potential for mould growth existed "as long as the water leakage is allowed to exist ... For this reason, the source of the water leakage should be identified and corrected to protect workers from airborne moulds."³⁷² Dr. Woychuk's "Advice to Management and the Health & Safety Committee" included the following with respect to the leaks: "Strong consideration should be given to take appropriate action to stop water from leaking through the ceiling into the library."³⁷³

Inspector issues no order to fix the leaks

Despite having seen the stained ceiling tiles during his visit, Mr. Regan never issued an order to fix the leaks at the Library. He did not think the situation amounted to a violation of the *Occupational Health and Safety Act* because he did not see actual water penetration.³⁷⁴ Although he did not recall seeing Dr. Woychuk's report – something I am suspicious of but can neither accept nor reject – Mr. Regan also maintained in testimony,

after being shown the report, that he could not have issued an order even in light of Dr. Woychuk's advice that appropriate action be taken to stop the leaks to avoid mould growth in the future.³⁷⁵ I find Mr. Regan's position to be untenable. Dr. Woychuk clearly identifies several actual and potential workplace hazards in his report – from excessive and widespread leakage to the potential for harmful mould if the leaks persist.

The 1995 Trow / Tobias structural analysis

Algocen asks Trow to determine whether the concrete topping needs to be bonded and to determine the structural capacity of the roof deck and steel

On June 23, 1995, Mr. Caughill faxed Trow a list of questions that Algocen wanted answered through a structural analysis of the Algo Mall roof. Algocen wished to know whether the concrete topping needed to be bonded to the precast slabs. If the topping needed to be bonded, Algocen wanted to know how to make sure that it remained bonded, whether alternatives to concrete existed, the percentage of debonding acceptable with the current topping and any alternatives, and the load limits of the existing combination of planks and wearing course or any alternatives. If the topping did not need to be bonded, Algocen wished to know whether the concrete topping could be removed without damaging the slabs and what the load limit was for the precast slabs.³⁷⁶

Mr. Caughill asked specific questions about the steel:

Is the structural steel capable of taking an additional load (assuming that the slab/topping composite is strong enough to take that load)

If YES

i) to what limits

if NO

i) can the steel be beefed up? how?³⁷⁷

He initially testified that his intent in asking these questions was to determine the theoretical capacity of the structure based on the design, and that he was not asking Trow to analyze the effect of the water on the structural steel.³⁷⁸

Mr. Caughill was then asked about the subsequent question he asked Trow:

3) Referencing the 2 previous reports:

i) what is the estimated life of the composite roof deck? (assuming that the leakage will be controlled to not exceed the past levels experienced between 1991 and 1994).

What would cause the failure? Will it be caused by degradation of the steel or the concrete (or both) by the chloride concentrations or by some other element (please define).

ii) Based on the two previous reports and the changes noted between them, how often should the structural be "investigated" as it has been in '91 and '94.³⁷⁹

Mr. Caughill then gave the following evidence:

Q. And that question, sir, that they were agreeing to answer appears to me to be related to the effect of the water; am I correct?

A. Yes, sir.

Q. And so you were asking Trow, to put it simply, tell me how long the deck is likely to last, assuming that the leakage doesn't get any worse than it was over the last three years, and what will cause the failure, right?

A. Yes, sir.

Q. And why was it you wanted to know that, sir?

A. We were trying to put this to bed. We were – we wanted to get answers to all our questions and do what we could.

Q. And would I be fair to conclude from these answers and from what we have talked about over the last day, day and a bit, is that you recognized that the water had the potential to cause structural damage and you wanted to be certain that the building would not be used longer than its structural capacity?

A. Yes.³⁸⁰

Trow provided a proposal in which it agreed to answer those precise questions.³⁸¹ Unfortunately, as will be seen, it did not follow through.

Trow retains Alex Tobias to do structural engineering analysis

Alex Tobias Associates Limited, Consulting Structural Engineers, was retained to provide the necessary structural engineering services, acting as the subcontractor to Trow.³⁸²

Tobias does not consider the effect of the leaks on the structure

In the Tobias portion of the report, dated October 6, 1995, Eric Liu, P. Eng., set out as objectives the evaluation of whether the existing concrete topping needed to be bonded, what the load capacity of the existing structure was, and how much load could be added to allow for a new waterproofing system.³⁸³ His analysis was a theoretical one, not based on an actual inspection of the structure and the effects of leakage to date.

He wrote that his opinion was based on a number of assumptions, including:

- 1 The garage roof structure was constructed in conformity to the existing drawings.
- 2 All garage roof structural components including concrete and steel are structurally sound. Any defect and/or deterioration will be repaired promptly.³⁸⁴

Mr. Dell'Aquila testified that Trow informed Mr. Liu of the state of the parking lot and that it had been the subject of ingress of rain and/or water and salt for 12 to 13 years. He could not recall whether Mr. Liu was given copies of Trow's previous reports.³⁸⁵

Tobias determines from Coreslab that the topping needs to be bonded to the hollow core slabs

Mr. Liu reported that Mr. Shaikh, the professional engineer employed by Coreslab, had advised him that the concrete topping was required to be fully bonded to the hollow core slabs. His report then proceeded on the basis that that assumption was correct.³⁸⁶ Ironically, it was Mr. Shaikh who had provided the same information to Rod Caughill in 1992. Algocen's uncertainty and dissatisfaction with this question were among the reasons it had asked for advice from Trow.

Tobias concludes that the design of the Mall's structure would support an additional 20 psf of new weight

Mr. Liu reported that, with a bonded topping, the 8-inch hollow core slabs used at the Algo Centre could support approximately 120 pounds per square foot of load, while the slabs without a topping were able to support only 87 psf. This opinion was based on the load table in the Coreslab catalogue.³⁸⁷ Mr. Liu also stated that, according to a letter from Mr. Shaikh of Coreslab, increasing the depth of the concrete topping did not increase the live-load capacity of the slab.³⁸⁸

Mr. Liu was provided with the original structural design drawings, which required that the roof deck be able to support a superimposed load, both dead and live, of 120 pounds per square foot, but the load was not broken down. However, the Coreslab shop drawings he was given did break it down to 45 psf of dead load (the weight of the topping, the suspended ceiling, and electrical and mechanical components) and 75 psf of live load (essentially the weight of cars and snow).³⁸⁹

Mr. Liu concluded that the hollow core slabs, fully bonded, could safely support the basic snow and rain load of 53 psf or 50 psf vehicle load, together with 20 psf of additional superimposed dead load, but found that snow piling and rain load might overstress certain areas of the roof.³⁹⁰ He wrote:

According to the available information and our analysis, with the exception of the overstressed core slab areas due to snow piling and rain load, a 20psf maximum weight of new waterproofing system could be added to the existing core slabs with bonded concrete topping.³⁹¹

Dr. Saffarini of NORR explained that Tobias had assumed that the presence of snow (with an assumed load of 53 psf) and a full parking garage (the vehicle load of 50 psf) would not occur at the same time and so both would not have to be supported by the roof. Dr. Saffarini thought that was an acceptable approach.³⁹² He testified:

The reason why they gave this recommendation is that they changed the project specs, they reduced the load, the live load, from what was specified in the original design as 75, to 50, so that gave them an availability. It is not in recognition of any higher capacity or anything to do with Core Slab, they simply – Core Slab were asked to design for 75 live load, 45 dead load. Alex Tobias said “You don’t need to design for 75 so we’ll live with 50 and we’ll use this to put in the waterproofing.” ... And we are saying that in our report as well.³⁹³

With respect to the steel beams, Tobias stated that the total allowable superimposed load, including the concrete topping, was approximately 120 psf. It concluded that the steel beams could, like the roof deck, generally sustain the loads from the hollow core slabs with the 3-inch concrete topping, plus basic snow and rain load of 53 psf or vehicle load of 50 psf, as well as an additional 20 psf superimposed dead load.³⁹⁴

Tobias concludes that a new waterproofing membrane weighing 20 psf could be installed

Tobias recommended several things – including installing control gates to prevent heavy trucks from entering the roof; and replacing all debonded concrete with fully bonded concrete, while taking care not to damage the existing hollow core slab.³⁹⁵ Importantly, Tobias stated that a new waterproofing system of 20 psf maximum could be installed:

According to the available information and our analysis, with the exception of the overstressed core slab areas due to snow piling and rain load, a 20 psf maximum weight of new waterproofing system could be added to the existing core slabs with bonded concrete topping.³⁹⁶

To deal with the areas of potentially overstressed hollow core slabs, Tobias recommended adding a one-storey roof over those areas but said that option might require reinforcing the steel columns and footings and needed further investigation.³⁹⁷

November 6, 1995: Trow report endorses Tobias’s opinion – and still does not consider the effect of the leaks on the structure

In its portion of the report, dated November 6, 1995, Trow reiterated the conclusions reached by Tobias, including Mr. Liu’s conclusion that the slabs with a fully bonded topping could support “the basic snow and rain load of 53 psf or 50 psf vehicle load as well as 20 psf superimposed dead load.” Trow thus advised Alгоцен that a waterproofing system up to a weight of 20 psf could be installed over the existing concrete topping once the debonded portions of the topping were repaired.³⁹⁸

Trow does not determine the expected life of the structure

Trow did not answer the question regarding the estimated life of the roof deck, which it had agreed to do on the assumption that the leakage would be controlled to not exceed the 1991 to 1994 levels. Nor did it provide its opinion on the likely cause of the failure, as it had agreed to do. Instead, Trow’s report stated, following the question “What is the estimated life of the composite roof deck?”

The roof deck presently contains areas of debonded concrete topping. These areas need to be removed and a new bonded topping installed to maintain the structural integrity of the slab. This should be carried out as soon as possible.

If the debonded topping is not repaired, the core slabs will not be able to safely carry the dead load of the topping since the topping and the core slabs must be bonded. On going leakage through the joints in the topping and core slabs will continue to cause deterioration of the topping and core slabs due to freeze/thaw cycles and chloride contamination of the core slabs and subsequent corrosion of the prestress strands in the core slabs and the supporting steel beams.³⁹⁹

Mr. Dell’Aquila admitted that this statement was not an answer to the question. He testified that it was difficult for engineers to give a specific answer and admitted that he could have “added an extra sentence” to indicate that the question was unanswerable.⁴⁰⁰

I would have thought that the better course would have been to not have agreed to answer the question at all. If, after considering the question, the firm determined that it could not be answered, or if it did not have the expertise to answer it, Trow could have, and should have, informed the client of that fact – and explained why. Such an answer may well have provided Alгоцен with information that would have been useful in determining how to deal with the roof deck.

Trow provides two repair options

Trow’s report stated:

Based upon the above conditions along with our other findings, the following repair options should be considered.⁴⁰¹

Option 1: Install asphalt based waterproof membrane on top of concrete topping at a cost of \$1.25 million to \$1.5 million

The first option required removal and replacement of the debonded concrete topping and the installation of a waterproofing system on the entire deck. It proposed an asphalt-based system and a one-storey canopy structure over the existing garage roof in the overstressed areas.⁴⁰² The option proposed in 1991 of removing the concrete topping and installing a membrane directly on the slabs was no longer advanced by Trow. Mr. Dell’Aquila testified that this decision was a result of Tobias’s advice that a fully bonded topping was necessary.⁴⁰³

The report estimated the cost of option 1 to be in the range of \$1.25 million to \$1.48 million, plus professional and incidental costs.⁴⁰⁴ It did not provide a price for option 2.

Option 2: Local repairs to leaks and debonded concrete topping, new expansion joints, and partial roof canopy

Option 2 was described in the report in the following way:

- a) Identify leaking cracks and debonded concrete topping areas in the roof slab.
- b) Locally remove concrete topping in the deteriorated areas to expose the top surface of the cores slabs.
- c) Install additional or modify drains as required.
- d) Install a new expansion joint waterproofing system in slab.
- e) Install caulking in joints in the repair areas and conduct local caulking repairs to portions of debonded caulking in the joints in other areas of the parking deck.
- f) Install a one storey roof canopy structure over the existing garage roof in areas where the core slabs could be overstressed due to snowpiling and rain load as determined by ATA.⁴⁰⁵

Trow recommends option 1

Trow recommended option 1 and noted:

Our recommendation is based upon the following criteria:

- a) The structural analysis carried out and the history of leakage problems at this structure.
- b) Option 1 assures complete repair to the parking structure facility and minimizes long term maintenance costs.
- c) Although Option 2 may initially be less costly, the long term maintenance costs will exceed the initial costs of Option 1. In addition Option 2 only addresses a small percentage of the problem and in the long term it will be more costly to conduct on going local repairs. On going local repairs also creates the problem of numerous construction joints in the concrete topping system and inconvenience to the mall and parking deck.⁴⁰⁶

Trow's report also recommended that repairs be conducted with the involvement of professional engineers:

We further recommend that Trow Consulting Engineers Ltd. be retained to prepare the Repair Specifications and Tender Documents and to carry out construction review and testing during the actual repairs. Should you wish to have these services carried out by others, we would suggest that Trow Consulting Engineers Ltd. be retained for a general review of the repair specifications to verify that our recommendations are properly interpreted and implemented in the specifications and that they are in accordance with the present state of knowledge.⁴⁰⁷

Trow recommends that a survey of the parking deck be done in 1996

In response to the specific question of how often the structure should be investigated, Trow stated:

We would recommend that an update survey of the parking deck be carried out in the spring of 1996 in order to gather the information and repair quantities (i.e. amount of debonded concrete topping, etc.) to prepare repair specifications for the rehabilitation of this parking deck. Once the parking deck has been repaired and waterproofed, the Algo Centre maintenance personnel at this structure should carry out a visual inspection of the parking deck on a monthly basis.⁴⁰⁸

Trow's evidence at the Inquiry: It did not recommend option 2 and felt that it was not a viable option

Mr. Dell'Aquila testified that the second option essentially involved the same system of patching and repairs that had been used since the beginning.⁴⁰⁹ During his testimony, he was pressed on why Trow would even put forth the option of continuing to do the same type of repairs. He defended Trow's approach by pointing out that the report had specifically stated that the second option would solve only part of the problem and cost more in the long run. Trow's recommendation was the full waterproofing.⁴¹⁰ Mr. Dell'Aquila felt Algocen should have understood that, by continuing with business as usual, it would not be following Trow's recommendation.⁴¹¹

Although Mr. Dell'Aquila did not consider that Trow was putting the "business as usual" approach forward as a viable option,⁴¹² he did say at one point in his testimony that the patch-and-repair approach would have worked better if it was engineered. By that he meant the preparation of proper repair specifications and a tendering process to pre-qualified restoration contractors with experience with this type of work. However, he stated, "it's not the same option as option 1, which would be to waterproof the entire deck. Option 2 would have ... caused continued leakage into the slabs."⁴¹³ Mr. Dell'Aquila also said that Trow was not offering option 2 as viable, but only as an option. At one point in his testimony he stated that he couldn't recall why Trow even bothered offering this second option.⁴¹⁴

Mr. Dell'Aquila gave the following evidence:

Well, the way we worded the intent of our letter is that we still recommended the waterproofing, and that if they still wanted to continue routing and sealing and doing the joints, they would still continue to have potential higher maintenance and leakage. They would be able to possibly control it a bit more, with the engineered approach, but, typically, when you are comparing sealant repairs to waterproofing repairs, the sealant repairs would require more maintenance than a complete waterproofing.⁴¹⁵

Mr. Iamono, for his part, felt that in putting this option forward, but highlighting the dangers, he was in fact pointing out that it was not a viable one. He was conveying to Algocen that what it was doing was not proper and could not continue. Business as usual amounted to "wasting your money" and the wrong thing to do.⁴¹⁶ In the end, however, he agreed that the language used conveyed this message only "indirectly," although he pointed to the clear language about this option solving only a small percentage of the problem.⁴¹⁷

Dr. Saffarini's opinion about the report: It did not state that option 2 was not viable

Dr. Saffarini of NORR was asked about Trow's proposed options and did not agree that it was saying that option 2 would not solve the problem. "I don't know that they said that it will not solve the problem," he testified. "They indicated that there are shortcomings in taking this option. So they clearly favored the option of waterproofing. I don't think that they said this option is not a viable [one] or it is an ineffective option but it has numerous shortcomings." He did agree that Trow was saying that, if Algocen wanted a solution that solved the entire problem, it should take option 1, the waterproofing option.⁴¹⁸

Importantly, Dr. Saffarini commented that, at this point in time (i.e., the time of the 1995 Trow / Tobias report), there was nothing inherently wrong with the structure requiring retrofitting.⁴¹⁹ He did say that, if the corrosion continued unabated, there is "a point of no return in terms of the capacity of the structure having been depleted ... the threshold would have been reached somewhere around the early 2000s."⁴²⁰

Comment: Clearer reports are better

I am puzzled by the apparent reluctance, by the writers of all the engineering reports, to express clear and straightforward conclusions and recommendations in precise and unequivocal language. If Trow had provided a dire warning as to the consequences of continual leaking, option 1 would have appeared as the only effective one. By putting the non-option in its 1995 report, Trow might be seen as suggesting that the second option was a viable one, although a less satisfactory one.

Algocen's reaction to the 1995 Trow / Tobias report

Algocen did not ask why Trow had not answered the two key questions – the effect of the water, and the expected life of the structure

Trow had not answered two fundamental and interrelated questions that were part of its scope of work – the effect of the water, and the expected life of the building.

Rod Caughill agreed in his testimony that that was so. He then gave the following evidence:

- Q. And, sir, what, if anything, did you do or say with respect to Trow about what you have told me are their failure to answer two of the key questions, the effect of the water on the structural steel and the life of the deck? Did you go back to them and say, answer these questions?
- A. I don't recall that we did or we did not.
- Q. Can you tell me why you didn't?
- A. I don't recall whether we did or we didn't.
- Q. Okay, you don't recall?
- A. No.
- Q. You'll agree with me that there is no document in which you asked that question – those questions?
- A. Correct.
- Q. And if you had asked those questions, would you expect it to have been done in writing and left in the file of Algoma Central Corporation?
- A. I would expect it would have been, yeah.⁴²¹

Mr. Leistner also agreed that neither the 1995 Trow report nor the Tobias review answered the questions of the effect of the water on the structure or its estimated life. He could not recall if Algocen went back to Trow and asked for answers.⁴²² It was his evidence that those questions were never answered. He could not explain why Algocen stopped asking the questions, other than to say that "we were probably just regrouping and seeing what to do next."⁴²³

I conclude that Algocen did not make inquiries of Trow as to why those questions, which it determined should have been answered by at least 1992, had not been answered. It appears that Algocen had determined that it did not need, or did not want, that information.

Algocen did not do an update survey of the roof deck in 1996 as Trow had advised it to do

Algocen had asked Trow how often the structure should be investigated. Trow advised to have it surveyed again in the spring of 1996. That survey was not done. Rod Caughill could not recall, when asked, why that advice had not been followed.⁴²⁴ Mr. Leistner thought that it was not done because it was required only for option 1, the preferred option.⁴²⁵

Mr. Caughill advised his superiors, without making further inquiries, that it would be very difficult to install a membrane that added only 20 psf; such a system was available

Mr. Caughill testified that, when he read the recommendation that a membrane and asphalt wearing course weighing no more than 20 psf could be applied, his reaction was that this advice was contrary to what he had received from “crews that do install for MTO and the City and everything else told us that the minimum they would recommend putting down would be 2 and a half inches of asphalt, which would have added 25 pounds on its own, let alone the membrane and the protection board.” He did not think it could be done.⁴²⁶

Mr. Caughill pointed out in his evidence that Trow had recommended that such a waterproofing layer be installed but had not stated that such a product was available. When asked whether he had thought that Trow would make the recommendation without determining whether it could be implemented, he testified that he could not say. He did not ask Trow what product the company was thinking of when it made the recommendation. He could not say why he did not make that inquiry.⁴²⁷

Mr. Caughill testified that his recommendation to Algocen was that installing an asphaltic-based wearing course within the parameters of 20 psf was going to be extremely difficult to achieve, and that he had not found such a product in anything he had researched previously.⁴²⁸

Mr. Leistner testified that he spoke with Mr. Caughill after receiving the Trow report. Mr. Caughill told him that he had done a lot of research and could not find a system that weighed less than 20 psf. Mr. Leistner testified that he could not say that he directed Mr. Caughill to ask Trow if there was a system that would work, but that he “would be surprised if he didn’t talk to them, with all this conversation going on.” Mr. Leistner did not believe that anyone from Algocen spoke with another engineer to find out if it could be safely done.⁴²⁹

Dr. Saffarini testified that there were acceptable asphalt wearing courses and waterproof membranes in 1995 – even as early as 1991, the time of the first Trow report – that could be applied with less than 20 psf.⁴³⁰ Mr. Dell’Aquila also testified that such systems were available at the time. They required a thinner membrane and a thinner asphalt wearing course. They required more maintenance than a “thick” system, which has a thicker asphalt layer and a protection board over the membrane but which, with proper maintenance, had a lifespan of approximately 20 years. Notes from the Trow file showed that one of these systems, with the trade name Multi-Guard 2, was the system that the Trow engineers had considered using in 1995.⁴³¹ I accept that evidence.

I conclude that Algocen did not ask Trow what product would have been available that would provide effective waterproofing and weighed less than 20 psf because it had no intention of spending approximately \$1.5 million to repair the leaks.

Algocen continued to repair the parking deck in the usual manner in 1995–6 and continued to contemplate sale

Despite knowing that a waterproofing membrane was the recommended solution to stop the leaks and the deterioration of the structure, Algocen continued to repair and patch the roof using the same procedure it had used in previous years. The roof was never made watertight during Algocen’s ownership. Rod Caughill and Robert Leistner both insisted that, as the years progressed, less time was required for repairs. It was their evidence that staff became more experienced at catching leaks before they became a problem; workmanship, materials, and design improved, and Algocen was removing debonded concrete topping and applying new bonded topping on a regular basis.⁴³² The best evidence on this point, which I accept, is that of Mr. Snow, the man who did the work on the roof and supervised the work of others: the techniques never changed over the years between 1989 and 2005, although the workers did get better at their job. But the leaks never went away.⁴³³

Trow did not provide the City with any of its reports – there was no requirement that it do so

Trow did not provide the City of Elliot Lake with a copy of any of the reports produced for Algocen, nor did it contact the City in any other context. In Mr. Dell'Aquila's view, it would not have been something he would have done unless his professional obligations required him to do so for safety reasons.⁴³⁴ The code of ethics governing Certified Engineering Technicians and Technologists was substantially the same in the early 1990s as it is today.⁴³⁵ It requires, among other things, that someone in Mr. Dell'Aquila's position "report to the appropriate agencies any hazardous, illegal or unethical professional decisions or practices by fellow members or others." Those rules of professional conduct, likewise, define professional misconduct to include "failure to act to correct or report a situation that the practitioner believes may endanger the safety or the welfare of the public."⁴³⁶ Mr. Dell'Aquila's view was that, despite the recommendation in the 1991 Trow report that the repairs be carried out as soon as possible in order to maintain the structural integrity of the building and prevent further deterioration, from 1991 to 1995 the leakage and observations he made were not such that he viewed the situation as a safety issue that required reporting to the appropriate agencies.* Mr. Iamonaco was of the same opinion. The building was not structurally unsound at the time, although it could have become that way at sometime in the future if not maintained and waterproofed.⁴³⁷

Mr. Dell'Aquila thought it would be a sensible requirement to have engineering reports registered on title. He did not know of any other way to acquire past engineering reports if they were not in the current owner's possession.⁴³⁸

Algocen never transferred information to the City about roof leaks and repairs

Rod Caughill never considered giving the Trow reports to the City during his involvement with the Mall. He was aware, in "general terms," that the City of Elliot Lake had a Property Standards By-law requiring that properties be structurally sound and watertight, but he never specifically considered whether the Mall was in compliance. "I mean, we were just maintaining the building," he testified.⁴³⁹ Similarly, Mr. Leistner never considered telling the City of Elliot Lake about Algocen's concerns for the long-term structural integrity of the rooftop parking deck. He described it as a deterioration issue and a long-term issue: "We were worried about tomorrow. We always thought the building was safe."⁴⁴⁰

Algocen never applied for a building permit for any of the work that related to sealing the parking deck, such as the expansion joint work, replacement of the bonded concrete topping, and the cutting into the hollow core slabs. Although Mr. Caughill was aware that the *Building Code Act* defined "construct" to include any material alterations or repairs of a building, he simply did not consider these types of things to be material, even if the work had effects on the engineered products. Algocen never gave any indications to the City that this work was being done because it considered it to be simply building maintenance.⁴⁴¹

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* Dell'Aquila testimony, March 21, 2013, pp. 2350–6. He viewed the appropriate agencies in a situation such as this one to be the owner and his company, Trow, but also possibly the municipality: "If it got to that stage, yes": Dell'Aquila testimony, March 21, 2013, p. 2347. Later in his testimony, however, he agreed that the report produced was the owner's property, and that he had a duty to act with integrity toward the client and maintain confidentiality. He was not aware of any guidance available on how to balance the conflict between this duty of confidentiality and the duty to protect the public. At one point, though, he did suggest that, if faced with a dangerous condition in a publicly accessible building, he would have no choice but to inform other parties, such as municipal officials, if, after he had informed the owner, the owner refused to remedy the danger: Dell'Aquila Testimony, March 21, 2013, pp. 2386–7, 2410–11.

November 1995: Council approves long-standing policy that Property Standards By-law enforcement is “complaint-driven”

On November 14, 1995, Mr. Burling, the City clerk, submitted a report to the mayor and members of council recommending the adoption of by-law–enforcement practices.⁴⁴² The purpose of the document was to codify the City’s enforcement practices in the various areas.⁴⁴³ This policy document provided that the enforcement of the City’s Property Standards By-law No. 79-15 was “complaint driven.”⁴⁴⁴ It was approved by City Council.

Mr. Bauthus signed off on this report and was aware of its contents. He agreed that the document was a description of how Elliot Lake had been approaching enforcement of the City’s Property Standards By-law.⁴⁴⁵ The report, prepared after City services were restructured following mine closures, was meant to convey to council the level of services that staff could provide, and were providing, in a context where resources were thin. The codification of City policy was to make clear that Elliot Lake was not “actively going out and pursuing infractions of the by-law.”⁴⁴⁶ Mr. Bauthus felt, though, that if the City’s property standards officer learned independently of an infraction of the by-law, he or she could investigate and potentially issue an order, although he suggested it depended on the seriousness of the infraction and the safety issues at stake.⁴⁴⁷ Mr. Bauthus did not recall any discussions at council on the potential effects of a complaint-driven enforcement policy in terms of protecting people who went into buildings.⁴⁴⁸

December 7, 1995: Algocen continues to explore options to sell the Mall

Algocen continued to seriously consider ways to sell the Algo Centre. It received advice from a consultant on December 7, 1995, that the property be listed for sale in 1996, perhaps using a real estate investment trust method of packaging in order to realize certain tax benefits.⁴⁴⁹ As of December 31, 1995, Algocen’s estimate of the book value of the property was \$5,057,000.⁴⁵⁰

December 19, 1995: Second inspection by Ministry of Labour – complaint of poor air quality, and no order issued

On December 19, 1995, the Ministry of Labour conducted another inspection of the Library to test the air quality.⁴⁵¹ Mr. Regan met again with Ms. Fazekas, Ms. Quinn, and possibly Mr. Butler, this time accompanied by a Ministry of Labour hygienist.⁴⁵² According to Ms. Fazekas, this second inspection was initiated as a result of concerns the Library had about the state of the ceiling above the tiles as well as sanitary issues associated with the leaking water.⁴⁵³ Mr. Regan, however, had no recollection of discussing the state of the leaks during the visit or of what people at the Library were saying about the situation.⁴⁵⁴

Mr. Regan met with Ms. Fazekas on July 9, 1996, as a follow-up to the December 1995 visit. At this time, Mr. Regan presented an “exposure assessment report.”⁴⁵⁵ The Commission was not provided with this report, and no witness could give evidence on its contents. No order was issued by the Ministry of Labour as a result of the December 1995 visit and follow-up.⁴⁵⁶

February–March 1996: Mr. Leistner recommends that Trow’s favoured \$1.5 million repair not be done, and that long-term ownership of the Algo Centre is not warranted

Mr. Leistner prepared a memorandum that bore the typed date of March 28, 1996. The typed date had been crossed out and a handwritten date of February 21 written above it.⁴⁵⁷ It was an update of his report to Mr. Cresswell of November 28, 1994, and reflected the recommendations of Mr. Leistner and Mr. Topp (Algocen’s vice-president of finance). Mr. Cresswell testified that it was his “guess” that the memorandum had been written on February 21, 1996, because his assistant had a habit of using old memos and updating them. I am not able to reach a conclusion on which of the two dates this memorandum was written. Mr. Leistner set out in the memorandum four options for disposal of the Mall, each of which had difficulties. He testified that, at the time he wrote the memorandum, he thought the Mall would be a hard piece of property to sell.⁴⁵⁸ He wrote:

Although there may be opportunities for small improvements in the cash return of the Centre, over the long-term there is no reason to see any significant improvement. In balancing upside with downside risks, long-term ownership of the Centre is not warranted. This is the first time in over ten years where there is a positive outlook from our two anchor tenants. The Foodland store is quite successful and the Met store presents a positive image because it is new and was willing to go into the Elliot Lake market. We should take advantage (as small as it is) of this situation and attempt to sell the Centre for whatever the market will bear.

Proposed Plan of Action:

I would recommend that we consolidate the previous mentioned options and do the following:

- i) Continue to prudently manage the project by maximizing cash flows and dealing with the maintenance issues.
- ii) List the property with a real estate broker. A non-exclusive listing would allow a private sale at no monetary loss.
- iii) Concurrent with ii) above, promote a sale through contacts.
- iv) Consider a vendor take-back mortgage with a short amortization period.
- v) As a REIT would likely offer the greatest value, we would do this if the opportunity arose.

If, after a fixed period of time (say six (6) months) there are no positive responses to the above, we would re-visit the issue and decide whether we want to auction the property.⁴⁵⁹

Mr. Leistner testified that after this memorandum was sent, Algocen continued to “prudently manage the project by maximizing cash flows and dealing with the maintenance issues.” He did not agree that that meant the company would not spend \$1.5 million to fix the roof. He testified that if the expenditure “fixed it and you did an analysis and it might have been good for the long term, then you – then it would add on to the estimated useful life of the project.” He did not do that analysis. Mr. Leistner’s evidence was that the analysis was not done because Algocen had no option to evaluate – “you need a viable option to evaluate.”⁴⁶⁰

On March 27, 1996 (either the day before or five weeks after the day the memorandum referred to above was written), Mr. Leistner wrote a short handwritten note:

Algo Centre

1. Trow recommends [illegible]
 - we should consider redoing the whole roof top parking
 - cost = \$1.5 mill.
 2. Simple Issue:
 - i) No guarantee
 - ii) I personally believe it won't stop the problem
- Risk is too great vs opportunity cost to sell the Centre⁴⁶¹

Mr. Leistner testified that this note reflected his thoughts and beliefs at the time. He said he personally believed that the proposed membrane would not work, even though Trow had given its professional opinion that it would work. The only explanation he could give for his belief was that there was no guarantee, even though he had not asked Trow for a guarantee. In any event, he did not expect that a professional engineer would give a guarantee that the repair method he or she recommended would work – he had never seen such a thing in his career. The “risk” referred to in the last line was, he testified, the great financial risk of spending the money to implement Trow’s proposal. He then gave the following evidence:

- Q. And by “opportunity cost” you mean you’re considering the money you’re going to spend to fix it, what you say is a million and a half here on the one hand, versus what effect that would have on the value of the asset once it was spent, is that fair?
- A. Are you throwing good money after bad on an obsolete building?
- Q. And you concluded that it would be throwing good money after bad on an obsolete building?
- A. No, we concluded it with the information that we had. We didn’t go through the process because we didn’t have a viable option. If we had a viable option in our mind, we would have gone through the valuation process. The million and a half did not include all the costs. We know that and I think Trow admits that. There were other costs involved in this project, and there was timing issues. We didn’t even have any knowledge of that at this time. We didn’t go back and ask because the project wasn’t viable.⁴⁶²

I do not accept this evidence. There was no basis for Mr. Leistner to believe, or conclude, that the solution proposed by Trow of installing a membrane at an approximate cost of \$1.5 million would not have worked. Trow had given the opinion that it would work. I have heard evidence that it would have worked. Nobody from Algocen checked with any engineer or other professionals to determine whether it had received bad advice from the professionals it had retained.

1996: Paul Meyer is hired to conduct a design review of the Algo Centre

Review was prompted by Mr. Kadlec’s licence suspension; Algocen was not seeking an analysis of the effect of the leaks on the structure

In early 1996, Algocen learned that the Professional Engineers of Ontario had suspended Mr. Kadlec’s professional engineer’s licence. It decided to review the structural drawings for the Algo Centre to ensure that the design met professional standards and to ensure workmanship and conformity with design. It was not looking for a determination of the effect of the water on the structure over time.⁴⁶³ That quest appears to have been abandoned by this time.

Paul Meyer hired over Trow: Cheaper and less comprehensive review

Algocen wrote to Trow on April 24, 1996, requesting a proposal to do the design and construction review.⁴⁶⁴

Don Cooper and Mr. Iamonaco of Trow wrote back on June 12, 1996, with a proposal.⁴⁶⁵ Trow proposed to use Tobias again as subcontractor.⁴⁶⁶ The fee to complete the proposed scope of work was quoted at \$17,000 and covered the following work:

- random visual review of field conditions to compare with the drawings, and random measurements of existing structural members to verify against the design details;
- exposing and measuring of the existing structural members where design details are not available;
- spot checking of structural steel connections;
- weld inspection and torque testing of bolts, where and if required;
- general review to identify any deteriorated structural components; and
- removal of portions of existing structural steel elements for strength testing of suspect members.⁴⁶⁷

Algocen considered that Trow's proposal went beyond what was asked.⁴⁶⁸ Dissatisfied with Trow's proposal, Algocen approached Paul Meyer, a civil engineer with a degree in architecture. He was licensed in Ontario as an engineer in 1990, and until 1994 worked in a firm with Bruce Caughill – an architect and engineer, and Rod Caughill's brother. Mr. Meyer began his own practice in 1994. In 1998 he moved to British Columbia, where he continues to work as an engineer.⁴⁶⁹

Mr. Meyer had done previous work for Algocen in late 1995, in relation to a collapse at the Station Mall in Sault Ste. Marie, also owned by Algoma Central Properties. He was called in immediately after that collapse and worked with the fire department to search for survivors or victims.⁴⁷⁰ He eventually conducted a detailed review of the design of the Station Mall, which had a girder system similar to the one used at the Algo Centre. Mr. Kadlec had been the engineer at both locations.⁴⁷¹

On July 5, 1996, Mr. Meyer provided a quote for the design review. The total fee quoted for the work was \$4,200.00. The proposal⁴⁷² covered the following:

- Review the structural design using the building codes in place at the time of original design and construction. This review could be completed by looking at the drawings and associated calculations.
- Provide an on-site review and spot check of the structural framing to confirm that the size of members and the connections were in conformance with the original design and accepted construction practices. (This review was to confirm that the as-built conditions met the specifications).
- If necessary, carry out a more detailed examination of any areas found to be deficient in design or construction based on the structural design review. (This last step was ultimately not required).⁴⁷³

Algocen accepted Mr. Meyer's proposal because it felt that he had quoted on exactly what was asked, and because his quote was significantly lower.⁴⁷⁴ Mr. Meyer, in viewing the Trow proposal during testimony, considered that it was more expensive in part because Trow was using a senior engineer out of Toronto, while he was local; and also because Trow was proposing a more detailed review, more akin to a condition assessment.⁴⁷⁵

Mr. Meyer agreed that certain of Trow's recommended steps, such as the torque testing, would have brought the inspectors close up to the steel bolts and connections, even where hidden or covered.⁴⁷⁶ His review, however, would involve random measurements of the steel to verify size, dimensions, and details, and his approach involved spot checking the connections, although possibly only from a distance. Mr. Meyer confirmed that, as a professional engineer, if he saw deteriorated components he would have reported them.⁴⁷⁷

Mr. Meyer did not review the Trow reports

Rod Caughill offered to provide the previous Trow reports but Mr. Meyer refused them, not wishing to bias his opinion. Mr. Caughill believed Mr. Meyer was familiar with Algocen's waterproofing problems as a result of their discussions, the long history of leaks, and Trow's recommendation that a membrane system be installed.⁴⁷⁸ Mr. Meyer, however, said he was not specifically aware of the fact that the structure had leaked since construction, and he did not recall discussions of that nature. During his time on site, he did learn that the roof needed to be sealed on a regular basis.⁴⁷⁹ He did not recall seeing the Trow reports, and essentially confirmed Mr. Caughill's evidence that he had not been interested in seeing previous reports because he wished to do an independent review:

I'm not sure if Ontario had adopted this at this point, but I know for example in BC they are fairly clear on saying that the person who does the design check of a project should be someone who's not associated with it and hasn't been directly involved. Because that way they're not going to ... fall into the same traps as the first engineer did.

And so I wouldn't have been interested in seeing someone else's analysis on it. ... The idea was to look at it with a completely fresh set of eyes ...⁴⁸⁰

Mr. Meyer worked only from the structural drawings, shop drawings, Coreslab drawings, and perhaps some of the architectural drawings.⁴⁸¹ When he testified, Mr. Meyer was taken through the first two Trow reports and asked if, had he been in possession of this information at the time of his review, he would have done anything differently. He replied: "Probably, because I am exclusively a structural engineer and I don't have any specialized knowledge in waterproofing, I probably would have reminded the owner that it was fairly critical to make sure that this thing didn't leak."⁴⁸²

Mr. Meyer discovers issues with the roof deck slabs that caused cracks

Algoma was doing some work on the major expansion joint near the Woolco store (at Gridline 10-10X) at about the time Mr. Meyer was scheduled to do his design review. Damage to the hollow core slabs was discovered during this process, and Mr. Meyer was asked to look at it. He visited the site on August 31, 1996, and returned on September 4, 5, 6, and 8.⁴⁸³ Mr. Meyer discovered that, according to the structural drawings (S-17), there was supposed to be a 2-inch (50 mm) gap between the precast slabs along that line over Woolco.⁴⁸⁴ He observed that the gap was about 10 millimetres when he arrived in the morning but had closed completely by 3 pm as a result of thermal expansion of the slabs.⁴⁸⁵ There were vertical cracks in the slabs, and Mr. Meyer had concerns that the cracking would compromise the load capacity and potentially lead to failure.⁴⁸⁶

During this process, Mr. Meyer contacted Coreslab and asked that one of its representatives visit the site to review the slabs and provide a proposed method of repair. Mr. Shaikh attended on Sunday, September 8, and provided written instructions for the repair method, with a follow-up letter later that week. The repairs were carried out.⁴⁸⁷ In the end, Mr. Meyer was never able to determine why the expansion joint closed up like it did, but thought it might have related to the thermal expansion he had observed.⁴⁸⁸ He speculated, as well, that the 2-inch gap was not properly and uniformly left between the precast slabs.⁴⁸⁹ No evidence was provided in support of this speculation.

Mr. Meyer concludes design adequate to support appropriate load requirement

Mr. Meyer conducted the on-site portion of the design review at the same time he was addressing the hollow core slab problem.⁴⁹⁰ He provided his Review of Structural Design and Construction at the end of October 1996.⁴⁹¹ He concluded that the design of the support system was adequate to support the specified dead and live loads.⁴⁹² While he determined that the 45 psf dead load was too low, meaning that the cantilevered beams and girders were overstressed, he also found that the prescribed 75 psf for live load was overly conservative and not necessary, hence, balancing out the dead-load overstressing. Given that only passenger cars and pickup trucks were allowed access to the parking area meant that, according to Mr. Meyer's calculations, 50 psf was the maximum live load required.⁴⁹³ He then calculated that it was reasonable to conclude that snow loads for the building would also never exceed 50 psf, so long as the building remained occupied. Using effectively the same analysis as Mr. Liu had used, that both snow load and a full vehicle load would not be present at the same time, he concluded that an appropriate live load for the parking deck was 50 psf, not 75 psf, assuming large vehicles were always kept off the roof.⁴⁹⁴ When analyzed using the correct live load of 50 psf, the structural steel framing was generally acceptable and in conformance with the Ontario *Building Code* in effect at the time of construction.⁴⁹⁵

Mr. Meyer also found that the precast slabs were designed in conformance with the Ontario *Building Code* and were generally installed correctly, with the exception of the problem at the expansion joint over Woolco.⁴⁹⁶

Mr. Meyer concluded that the concrete topping needed to be bonded to the precast slabs in order to support a load of 120 psf. However, he found that by themselves the precast slabs could support his corrected live load of 50 psf and dead load of 45 psf and testified that "[t]his means that the bonding of the existing concrete topping to the precast slabs is not necessary from a structural standpoint."⁴⁹⁷ He suggested that the ability of the slabs to take 95 psf came directly from Coreslab's own published tables.⁴⁹⁸ His figure is to be contrasted with the Commission's information, which is that Coreslab's tables prescribed a load of 87 psf for similarly sized hollow core slabs.

Mr. Meyer was pressed on how he reached the conclusion that the concrete slab needed to be bonded in order to attain 120 psf. He agreed that structural drawing S4 did not show that a composite slab was needed to obtain 120 psf.⁴⁹⁹ It was also pointed out to him, and he agreed, that the upper Mall level (i.e., the inside second floor of the building, drawing S3) called for 120 psf with no bonded topping required. He did not notice this fact during his design review.⁵⁰⁰ Mr. Meyer could not explain how it was consistent to say that the parking level slabs required a bonded concrete topping to achieve 120 psf, while the upper Mall level, with the same 120 psf load requirement and using the same slabs, did not.⁵⁰¹

Mr. Meyer concluded that the original design engineer made two errors in designing this girder structural steel framing system. The first was to not consider the "full and partial" loading on the roof; and the second was to use a live load that was 50 percent higher than required. "Fortunately," Mr. Meyer found, "the second error made the final product more conservative than might have otherwise been built, and more than compensated for the effects of the first error."⁵⁰²

Mr. Meyer recommends heavy vehicles be kept off the roof

He also made the suggestion in his report that the roof may have been overloaded in the past when buses went on it. He suggested that buses would not have overstressed the steel and likely did not damage the slabs, but they may have led to cracks between the slabs in the grouting, cracks in the concrete topping, and consequent water entry into the building. He recommended ongoing monitoring of the leaks and their prompt repair.⁵⁰³

Given that the foundations, structural steel, and precast concrete slabs were determined to be capable of supporting their loads, Mr. Meyer made no recommendations for modification or alteration of the structural system. He suggested, though, that the large heavy vehicles allowed on to the parking deck could potentially create serious structural problems. He recommended that the movable gates at the bottom of the ramps leading to the parking deck be made into permanent and non-movable barriers with a clearance of 7 feet so as to allow passage of only passenger cars and 4 x 4 pickup trucks.⁵⁰⁴

Mr. Meyer testified that he did not notice any loss of section during his review. However, he was not looking specifically for it and looked at only certain beams during his design review.⁵⁰⁵ His report made no reference to corrosion observed during his review of the Mall.

He suggested, though, that the large heavy vehicles allowed on to the parking deck could potentially create serious structural problems.

Mr. Meyer concludes that a waterproof membrane could be installed on the roof

Given his finding that the bonded concrete topping was not necessary from a structural standpoint, Mr. Meyer concluded that it could be removed and a conventional parking deck waterproofing system applied:

Should a decision be made in the future to remove the concrete topping to apply a conventional parking deck waterproofing system, this could be done provided the weight of the new wearing surface was examined.⁵⁰⁶

With the receipt of the Meyer report, Algocen was now in possession of two reports which advised that the roof deck parking could support the load from a membrane and wearing course waterproofing system, with attention to be paid to the weight of the wearing course laid over the top of the membrane. However, as discussed below, Algocen chose to prefer its own opinion and decided, despite advice to the contrary from Trow and Mr. Meyer, that the rooftop parking could not support the weight of membrane and wearing course.

Algocen's reaction to the Meyer report – business as usual

Algocen appears to have focused on the recommendation in the report that large vehicles needed to be prevented from going on the roof. Despite Mr. Meyer's recommendation that permanent barriers be installed, Messrs. Caughill, Leistner, and Liautaud ultimately reached the conclusion that, although movable, the barricades in place were doing an effective job of keeping this type of traffic off the deck.⁵⁰⁷ Algocen once again decided that it knew best and failed to follow the advice it received from the engineers.

Rod Caughill was specifically asked about Mr. Meyer's conclusion that the slabs could take 95 psf even without a bonded topping and his opinion that the concrete topping could be removed and a waterproofing system applied, depending on the weight. Mr. Caughill agreed that this was yet another opinion on the issue, but said he did not notice this aspect of the Meyer report at the time. He therefore did not follow up to resolve the differences in opinion he was getting from Trow, Coreslab, Mr. Kadlec, and now Mr. Meyer.⁵⁰⁸ Mr. Leistner, for his part, said he would have relied on Mr. Caughill to give him an overview of this report and did not recall ever discussing the waterproofing option put forward by Mr. Meyer.⁵⁰⁹

Algocen continued with the same maintenance approach for the parking deck, which involved walking the deck, looking for joints that required repair, and attempting to stop leaks before they became a problem.⁵¹⁰ Through to the sale of the building, the leaks were never fully stopped.⁵¹¹

Conclusion: Algocen chose to sell the Mall rather than fix it

Mr. Leistner insisted that Algocen would have considered spending something in the order of \$1.5 million to fix the roof despite the fact that it was looking to maximize cash flow and for opportunities to sell the Mall. Mr. Leistner said that if a viable option existed for repairing the roof, he would have reviewed the costs to assess whether doing so would have amounted to a good long-term decision.⁵¹² He insisted that if Algocen had not entered into discussions with Retirement Living about buying the Algo Centre, Algocen would have again turned its mind to addressing the roof repairs. However, once the possibility arose that Retirement Living would buy the Mall, Algocen proceeded on the basis that the new buyer would do its due diligence and deal with the roof if they bought the property.⁵¹³

I do not accept that evidence. I have come to the conclusion that, at some point in the early to mid-1990s Algocen determined that, rather than fixing the roof, the wiser course of action was to sell the Mall to minimize losses and remove the problem. I come to that conclusion after considering these facts:

- In 1991, it asked Trow for a report on the building's structural integrity because it had concerns about potential structural damage caused by the leaks. One of the reasons for that report being requested, as set out in correspondence from Algocen to Trow, was that "we have definite concerns regarding structural damage."
- Trow advised Algocen in 1991 that:
 - the waterproofing design was inappropriate;
 - it was very likely that further deterioration and leakage would continue to occur if the entire slab and expansion joints were not waterproofed;
 - its recommendation was to install a membrane at a cost of \$1.26 million.
- Algocen asked Trow if a membrane was actually necessary and was told it was.
- Mr. Caughill testified that, after receiving Trow's first report, he understood that a full waterproofing system was necessary to maintain the structural integrity of the roof deck and the only way to achieve that was to install a membrane.
- Although Algocen had concerns about the ability of the roof to support the proposed membrane system, it did not go back to Trow to voice its concerns or retain any other engineer to ask for an opinion on the issue.
- Instead, it continued to maintain the roof deck in the same way it always had – the same method that had produced the problems reported on by Trow.
- In September 1991, four months after the first Trow report, the vice-president of finance of Algoma Central Corporation questioned the wisdom of continuing to operate the Mall and began a series of discussions among senior executives about the best way to deal with the property – sell it, fix it, or close it down.
- In February 1992, Mr. Leistner recommended selling the Mall for whatever price it would fetch. Among his concerns was the capital cost of fixing the roof. From this point forward, Algocen regularly engaged in activities and discussions about selling the Mall.
- In June 1992, senior executives of Algocen met and reached a consensus that:
 - there was "no question we have to do something (within our financial restrictions)" (but never did anything different to deal with the leaks); and
 - "at the end of the day," it would have to engage in testing and re-evaluation of the load capabilities of the structure because of its age and the degradation caused by the leaks (but never conducted that re-evaluation).

- Algocen did nothing to further investigate the physical condition of the Mall until 1994, three years after it had received the first report. Mr. Leistner could not explain why it had waited so long and not sought any other professional advice in the interim.
- Algocen received an oral warning in June 1994 that, although there was not yet a structural problem, the corrosion would accelerate exponentially if the leakage was not treated. Yet the company never changed the way that it had treated the leakage.
- Trow advised Algocen in writing in 1994 that the water and salt penetration through joints would cause structural deterioration to increase.
- In 1994, Trow recommended that a structural audit be obtained. Mr. Leistner echoed that recommendation in a memorandum of November 28, 1994, to the CEO, and the board of directors approved a structural audit “to determine its integrity and possible future maintenance costs.” Algocen retained Trow in 1995 to answer specific questions, including the effect of the years of leaks on the structure and the effective life expectancy of the building. When those questions were not answered by the report provided, Algocen did not make inquiries or ever again seek to have that issue determined.
- At the same time that Mr. Leistner recommended that a structural audit be obtained, he recommended that the building be disposed of “at a realistic price.”
- In December 1994, the board of directors approved a recommendation to determine the integrity of the building and possible future maintenance costs, and to “more aggressively determine the marketability of the complex.”
- Although Mr. Caughill testified that in 1995 the company wanted to be certain that the building would not be used longer than its structural capacity, it took no further steps to ensure that this intention was carried out.
- In 1995, Trow recommended that a membrane be installed at a cost of \$1.5 million. Algocen took the position that Trow’s advice was wrong and that no suitable membrane was available, but did not ask Trow or any other professional whether there was such a membrane on the market. Had it asked, it would have learned that there was a suitable application available.
- Instead of making the recommended repairs or investigating other options, Algocen continued the maintenance regime it had always followed and focused its energies on selling the Mall.
- It clearly could have afforded to fix the roof but did not do so.
- In the spring of 1996, Mr. Leistner again recommended to Mr. Cresswell that they should “attempt to sell the Centre for whatever the market will bear” and “continue to prudently manage the project by maximizing cash flows and dealing with the maintenance issues.”
- As will be seen, Algocen commenced discussions with Retirement Living in 1997 and ultimately agreed to sell the Mall in 1999 for \$4 million, having been prepared to take only \$3.5 million.
- The Mall was sold “as is.”
- During the course of the negotiations, Algocen did not provide to Retirement Living any of the engineering reports it had obtained describing the state of the roof deck and the leaks.

In my view, the best determinant of what a party intends to do is what, in fact, it does. Algocen was told it needed to apply a membrane at a cost of \$1.5 million in order to fix the leaks and ensure structural integrity. It was told that it could do so. Over a lengthy period of time, it did not do so. Instead, it sold the Mall. I conclude that the company decided that the more prudent course of action, for financial reasons, was to sell the Mall rather than fix it.

Notes

- ¹ Rod Caughill testimony, March 12, 2013, p. 1332.
- ² Rod Caughill testimony, March 12, 2013, p. 1333.
- ³ Farkouh testimony, May 7, 2013, pp. 8375–6.
- ⁴ Rod Caughill testimony, March 12, 2013, p. 1337.
- ⁵ Rod Caughill testimony, March 12, 2013, p. 1333.
- ⁶ Rod Caughill testimony, March 12, 2013, pp. 1335–7. Mr. Willey's name is on a document as general manager of the Algo Centre in August 1987: Exhibit 2060.
- ⁷ Rod Caughill testimony, March 12, 2013, pp. 1339–40.
- ⁸ Rod Caughill testimony, March 20, 2013, pp. 2005–6.
- ⁹ Rod Caughill testimony, March 12, 2013, pp. 1339–40.
- ¹⁰ Exhibit 14; Exhibit 590; Rod Caughill testimony, March 12, 2013, pp. 1356–7.
- ¹¹ Rod Caughill testimony, March 12, 2013, pp. 1349–50.
- ¹² Exhibit 578.
- ¹³ Exhibit 14; Rod Caughill testimony, March 12, 2013, pp. 1351–2.
- ¹⁴ Rod Caughill testimony, March 20, 2013, pp. 2045–6.
- ¹⁵ Rod Caughill testimony, March 20, 2013, pp. 2044–5.
- ¹⁶ Rod Caughill testimony, March 12, 2013, pp. 1367–9.
- ¹⁷ Rod Caughill testimony, March 13, 2013, p. 1403.
- ¹⁸ Rod Caughill testimony, March 13, 2013, pp. 1409–10.
- ¹⁹ Rod Caughill testimony, March 13, 2013, pp. 1410–11.
- ²⁰ Rod Caughill testimony, March 13, 2013, pp. 1594–5.
- ²¹ Exhibit 2060.
- ²² Rod Caughill testimony, March 13, 2013, pp. 1435–7.
- ²³ Exhibit 2060.
- ²⁴ Rod Caughill testimony, March 13, 2013, pp. 1437–8.
- ²⁵ Fazekas testimony, March 11, 2013, pp. 1099–1100.
- ²⁶ Farkouh testimony, May 2, 2013, pp. 7925–6.
- ²⁷ Farkouh testimony, May 15, 2013, p. 7924.
- ²⁸ Farkouh testimony, May 15, 2013, pp. 7924–5.
- ²⁹ Fazekas testimony, March 11, 2013, p. 1101.
- ³⁰ *Public Libraries Act*, RSO 1990, c P.44, s 3.
- ³¹ Fazekas testimony, March 11, 2013, pp. 1102–3.
- ³² Fazekas testimony, March 11, 2013, p. 1105.
- ³³ Fazekas testimony, March 11, 2013, pp. 1104–5.
- ³⁴ Farkouh testimony, May 15, 2013, p. 10057.
- ³⁵ Fazekas testimony, March 11, 2013, p. 1106.
- ³⁶ Fazekas testimony, March 11, 2013, p. 1106.
- ³⁷ Fazekas testimony, March 11, 2013, pp. 1107–8.
- ³⁸ Fazekas testimony, March 11, 2013, pp. 1108–10.
- ³⁹ Fazekas testimony, March 11, 2013, pp. 1111–12.
- ⁴⁰ Exhibit 1172.
- ⁴¹ Fazekas testimony, March 11, 2013, pp. 1114–15.
- ⁴² Fazekas testimony, March 11, 2013, pp. 1114–16.
- ⁴³ Fazekas testimony, March 11, 2013, p. 1117.
- ⁴⁴ Farkouh testimony, May 2, 2013, pp. 7930–1.
- ⁴⁵ Farkouh testimony, May 15, 2013, p. 10024.
- ⁴⁶ Fazekas testimony, March 11, 2013, pp. 1118–19.
- ⁴⁷ Fazekas testimony, March 11, 2013, p. 1120.
- ⁴⁸ Fazekas testimony, March 12, 2013, p. 1293.
- ⁴⁹ Fazekas testimony, March 12, 2013, pp. 1292–3.
- ⁵⁰ Fazekas testimony, March 11, 2013, pp. 1121–2; Exhibit 345.
- ⁵¹ *Public Libraries Act*, RSO 1990, c P.44, s 19(1).
- ⁵² Farkouh testimony, May 2, 2013, p. 7935.
- ⁵³ Farkouh testimony, May 2, 2013, pp. 7931–2.
- ⁵⁴ Farkouh testimony, May 15, 2013, pp. 10057–8.
- ⁵⁵ Farkouh testimony, May 2, 2013, p. 7934.
- ⁵⁶ Fazekas testimony, March 12, 2013, pp. 1143–4; Exhibit 11–11.
- ⁵⁷ Farkouh testimony, May 2, 2013, pp. 7937–8; Farkouh testimony, May 15, 2013, pp. 10030–1, 10090–1.
- ⁵⁸ Farkouh testimony, May 2, 2013, pp. 7934–5.
- ⁵⁹ Farkouh testimony, May 2, 2013, p. 8108.
- ⁶⁰ Farkouh testimony, May 7, 2013, pp. 8407–8.
- ⁶¹ Farkouh testimony, May 2, 2013, pp. 7937–8.
- ⁶² Farkouh testimony, May 7, 2013, pp. 8407–8.
- ⁶³ Snow testimony, April 3, 2013, p. 3950.
- ⁶⁴ Snow testimony, April 3, 2013, pp. 3950–1, 4027.
- ⁶⁵ Snow testimony, April 3, 2013, p. 4025.
- ⁶⁶ Snow testimony, April 3, 2013, pp. 3984–5.
- ⁶⁷ Snow testimony, April 3, 2013, p. 3985.
- ⁶⁸ Snow testimony, April 3, 2013, p. 4010.
- ⁶⁹ Snow testimony, April 3, 2013, p. 4009.
- ⁷⁰ Burling testimony, April 2, 2013, p. 3784.
- ⁷¹ Farkouh testimony, May 15, 2013, p. 10051.
- ⁷² Exhibit 4335, Chapter 13, Figure 1, p. 004.
- ⁷³ Farkouh testimony, May 7, 2013, p. 8402.
- ⁷⁴ Exhibit 492; Leistner testimony, March 27, 2013, p. 3271; Leistner testimony, March 28, 2013, p. 3640. Mr. Leistner added that the company had borrowed to build the Algo Centre and this debt was allocated to the specific properties on a carrying value basis.
- ⁷⁵ Rod Caughill testimony, March 13, 2013, pp. 1437–8.
- ⁷⁶ Exhibit 586.
- ⁷⁷ Rod Caughill testimony, March 13, 2013, pp. 1440–2.
- ⁷⁸ Snow testimony, April 4, 2013, pp. 3963–5, 3975.
- ⁷⁹ Snow testimony, April 4, 2013, pp. 3966–7.
- ⁸⁰ Snow testimony, April 4, 2013, pp. 4019–20.
- ⁸¹ Snow testimony, April 4, 2013, pp. 3967–8.
- ⁸² Snow testimony, April 4, 2013, pp. 3962, 3989.
- ⁸³ Snow testimony, April 4, 2013, pp. 3990.
- ⁸⁴ Rod Caughill testimony, March 13, 2013, p. 1417.
- ⁸⁵ Exhibit 586 describes these processes. See, also, Rod Caughill testimony, March 13, 2013, pp. 1442–5.
- ⁸⁶ Rod Caughill testimony, March 12, 2013, pp. 1365–6.
- ⁸⁷ Rod Caughill testimony, March 13, 2013, pp. 1417–18.
- ⁸⁸ Snow testimony, April 3, 2013, pp. 3973–4.
- ⁸⁹ Rod Caughill testimony, March 13, 2013, pp. 1445–9.
- ⁹⁰ Exhibit 584; Rod Caughill testimony, March 13, 2013, pp. 1421–2.
- ⁹¹ Exhibit 584; Rod Caughill testimony, March 13, 2013, pp. 1421–2.
- ⁹² Rod Caughill testimony, March 13, 2013, p. 1431; Exhibit 584.
- ⁹³ Rod Caughill testimony, March 13, 2013, pp. 1421–5; Exhibit 584.
- ⁹⁴ Rod Caughill testimony, March 13, 2013, p. 1427–8.
- ⁹⁵ Rod Caughill testimony, March 13, 2013, p. 1429.
- ⁹⁶ Rod Caughill testimony, March 13, 2013, pp. 1431, 1505–6.
- ⁹⁷ Snow testimony, April 3, 2013, p. 3951.
- ⁹⁸ Snow testimony, April 3, 2013, pp. 3962–3.
- ⁹⁹ Exhibit 584; Rod Caughill testimony, March 13, 2013, pp. 1434–5.
- ¹⁰⁰ Exhibit 2061.
- ¹⁰¹ Exhibit 585.
- ¹⁰² Rod Caughill testimony, March 13, 2013, p. 1448; Rod Caughill testimony, March 19, 2013, pp. 1925–6.
- ¹⁰³ Exhibit 32.
- ¹⁰⁴ Exhibit 3007, p. 302; Exhibit 32.
- ¹⁰⁵ Rod Caughill testimony, March 13, 2013, pp. 1449–50.
- ¹⁰⁶ Exhibit 591; Rod Caughill testimony, March 13, 2013, pp. 1474–82; Exhibit 3007, p. 302.
- ¹⁰⁷ Rod Caughill testimony, March 19, 2013, p. 1885.

- ¹⁰⁸ Rod Caughill testimony, March 13, 2013, pp. 1483–4.
- ¹⁰⁹ Snow testimony, April 3, 2013, pp. 3951–2, 3992–3.
- ¹¹⁰ Exhibit 423; Rod Caughill testimony, March 13, 2013, pp. 1485–8; Exhibit 3007, p. 302.
- ¹¹¹ Exhibit 423; Exhibit 3007, p. 302.
- ¹¹² Exhibit 423; Exhibit 3007, p. 302.
- ¹¹³ Rod Caughill testimony, March 13, 2013, pp. 1486–7; Exhibit 423; Snow testimony, April 3, 2013, p. 3969.
- ¹¹⁴ Pigeau testimony, March 25, 2013, p. 2706; Exhibit 3022 is an example of Alгоцен's failure to apply for a building permit.
- ¹¹⁵ Rod Caughill testimony, March 19, 2013, pp. 1987–90; *Building Code Act, 1992*, SO 1992, c 23, s 8
- ¹¹⁶ Rod Caughill testimony, March 13, 2013, p. 1460.
- ¹¹⁷ Rod Caughill testimony, March 13, 2013, pp. 1461–2.
- ¹¹⁸ Rod Caughill testimony, March 13, 2013, pp. 1460–1, 1489.
- ¹¹⁹ Leistner testimony, March 27, 2013, pp. 3556–7; Rod Caughill testimony, March 13, 2013, p. 1461.
- ¹²⁰ Exhibit 33, pp. 4; Exhibit 35, pp. 18; Dell'Aquila testimony, March 20, 2013, pp. 2200–1.
- ¹²¹ Iamonaco testimony, March 21, 2013, p. 2442.
- ¹²² Iamonaco testimony, March 21, 2013, pp. 2440–1.
- ¹²³ Dell'Aquila testimony, March 20, 2013, pp. 2078–9.
- ¹²⁴ Dell'Aquila testimony, March 20, 2013, pp. 2084–5.
- ¹²⁵ Exhibit 33: Rod Caughill testimony, March 13, 2013, pp. 1462–5.
- ¹²⁶ Exhibit 33.
- ¹²⁷ Exhibit 1089; Rod Caughill testimony, March 13, 2013, pp. 1470–1.
- ¹²⁸ Exhibit 2064.
- ¹²⁹ Rod Caughill testimony, March 13, 2013, pp. 1490–1.
- ¹³⁰ Exhibit 11-11.
- ¹³¹ Fazekas testimony, March 12, 2013, pp. 1155–6.
- ¹³² Exhibit 273.
- ¹³³ Fazekas testimony, March 12, 2013, pp. 1147, 1150–1.
- ¹³⁴ Fazekas testimony, March 12, 2013, p. 1143; Rod Caughill testimony, March 13, 2013, pp. 1512–13, 1515–16; Snow testimony, April 3, 2013, p. 3875. See, also, Exhibit 273, a letter from Mr. Liautaud to Ms. Taylor dated May 7, 1991, which described the pails, pans, and hoses as “by no means a permanent solution.”
- ¹³⁵ Exhibit 11-11; Pigeau testimony, March 22, 2013, p. 2577.
- ¹³⁶ Pigeau testimony, March 22, 2013, pp. 2580–2.
- ¹³⁷ Pigeau testimony, March 22, 2013, pp. 2597–8.
- ¹³⁸ Pigeau testimony, March 22, 2013, pp. 2601–3.
- ¹³⁹ Leistner testimony, March 28, 2013, p. 3607.
- ¹⁴⁰ Leistner testimony, March 28, 2013, pp. 3619–20.
- ¹⁴¹ Pigeau testimony, March 22, 2013, pp. 2588–96.
- ¹⁴² Pigeau testimony, March 22, 2013, pp. 2599–2600.
- ¹⁴³ Farkough testimony, May 2, 2013, pp. 8104–10.
- ¹⁴⁴ Farkough testimony, May 2, 2013, pp. 8104–10.
- ¹⁴⁵ Farkough testimony, May 2, 2013, p. 7939.
- ¹⁴⁶ Bauthus testimony, March 25, 2013, pp. 2868–72.
- ¹⁴⁷ Bauthus testimony, March 26, 2013, p. 2921.
- ¹⁴⁸ Bauthus testimony, March 26, 2013, pp. 2922–3.
- ¹⁴⁹ Bauthus testimony, March 26, 2013, pp. 2924–5.
- ¹⁵⁰ Bauthus testimony, March 26, 2013, p. 2908.
- ¹⁵¹ Bauthus testimony, March 25, 2013, pp. 2910–11.
- ¹⁵² Bauthus testimony, March 26, 2013, pp. 2921–2.
- ¹⁵³ Bauthus testimony, March 26, 2013, p. 2947.
- ¹⁵⁴ Bauthus testimony, March 26, 2013, pp. 2946–49.
- ¹⁵⁵ Bauthus testimony, March 26, 2013, p. 3081.
- ¹⁵⁶ Bauthus testimony, March 26, 2013, pp. 2949–50.
- ¹⁵⁷ Exhibit 35.
- ¹⁵⁸ Dell'Aquila testimony, March 20, 2013, p. 2079; Iamonaco testimony, March 21, 2013, p. 2441.
- ¹⁵⁹ Iamonaco testimony, March 21, 2013, pp. 2442–4.
- ¹⁶⁰ Exhibit 35, p. 5.
- ¹⁶¹ Exhibit 35, p. 5.
- ¹⁶² Exhibit 35, p. 5; Dell'Aquila testimony, March 20, 2013, pp. 2087–90.
- ¹⁶³ Exhibit 35, p. 6.
- ¹⁶⁴ Rod Caughill testimony, March 19, 2013, pp. 1787–9.
- ¹⁶⁵ Rod Caughill testimony, March 19, 2013, p. 1789; Exhibit 35, Drawings.
- ¹⁶⁶ Exhibit 1974. See also Exhibit 35, “Drawings, although the visibility is not good.”
- ¹⁶⁷ Exhibit 1974.
- ¹⁶⁸ Exhibit 1974; Rod Caughill testimony, March 19, 2013, pp. 1793–5.
- ¹⁶⁹ Dell'Aquila testimony, March 20, 2013, p. 2139; Dell'Aquila testimony, March 21, 2013, pp. 2244–8.
- ¹⁷⁰ Rod Caughill testimony, March 19, 2013, pp. 1796–9; Exhibit 1974.
- ¹⁷¹ Rod Caughill testimony, March 13, 2013, p. 1523; Dell'Aquila testimony, March 20, 2013, p. 2123.
- ¹⁷² Exhibit 35, p. 7.
- ¹⁷³ Exhibit 35, p. 7.
- ¹⁷⁴ Exhibit 35, p. 8.
- ¹⁷⁵ Exhibit 35, pp. 8–9.
- ¹⁷⁶ Exhibit 35, p. 9.
- ¹⁷⁷ Exhibit 35, p. 13.
- ¹⁷⁸ Exhibit 35, p. 13.
- ¹⁷⁹ Exhibit 35, p. 10; Rod Caughill testimony, March 13, 2013, p. 1532.
- ¹⁸⁰ Exhibit 35, p. 10; Rod Caughill testimony, March 13, 2013, p. 1532.
- ¹⁸¹ Exhibit 35, abstract.
- ¹⁸² Exhibit 35, abstract. See also p. 8 of the same exhibit.
- ¹⁸³ Exhibit 35, p. 8.
- ¹⁸⁴ Exhibit 35, abstract. See also p. 8 of the same exhibit.
- ¹⁸⁵ Exhibit 35, p. 10.
- ¹⁸⁶ Exhibit 35, p. 13.
- ¹⁸⁷ Dell'Aquila testimony, March 21, 2013, p. 2242.
- ¹⁸⁸ Exhibit 35, pp. 9–10.
- ¹⁸⁹ Iamonaco testimony, March 21, pp. 2451, 2454–5, 2458.
- ¹⁹⁰ Exhibit 35, p. 13.
- ¹⁹¹ Exhibit 35, abstract.
- ¹⁹² Exhibit 35, p. 14.
- ¹⁹³ Exhibit 35, p. 16.
- ¹⁹⁴ Exhibit 35, p. 14.
- ¹⁹⁵ Exhibit 35, p. 15.
- ¹⁹⁶ Exhibit 35, p. 15.
- ¹⁹⁷ Exhibit 35, p. 15.
- ¹⁹⁸ Exhibit 35, p. 17.
- ¹⁹⁹ Exhibit 35, p. 18.
- ²⁰⁰ Exhibit 35, p. 16.
- ²⁰¹ Exhibit 35, p. 16.
- ²⁰² Exhibit 35, pp. 16–17.
- ²⁰³ Dell'Aquila testimony, March 20, 2013, pp. 2142–8; Iamonaco testimony, March 21, 2013, pp. 2485–6.
- ²⁰⁴ Exhibit 424.
- ²⁰⁵ Leistner testimony, March 27, 2013, pp. 3260–1; Exhibit 424.
- ²⁰⁶ Rod Caughill testimony, March 13, 2013, p. 1553.
- ²⁰⁷ Exhibit 424; Rod Caughill testimony, March 13, 2013, pp. 1551–2.
- ²⁰⁸ Exhibit 424; Rod Caughill testimony, March 13, 2013, p. 1550.

- 209 Rod Caughill testimony, March 13, 2013, p. 1546.
- 210 Rod Caughill testimony, March 13, 2013, p. 1548.
- 211 Rod Caughill testimony, March 13, 2013, pp. 1547–8.
- 212 Exhibit 424; Rod Caughill testimony, March 13, 2013, p. 1552.
- 213 Dell'Aquila testimony, March 21, 2013, pp. 2413–6; Exhibit 181.
- 214 Dell'Aquila testimony, March 21, 2013, pp. 2418–19.
- 215 Dell'Aquila testimony, March 21, 2013, pp. 2364, 2366.
- 216 Rod Caughill testimony, March 13, 2013, pp. 1556–7; Exhibit 425.
- 217 Exhibit 420; Rod Caughill testimony, March 13, 2013, p. 1559.
- 218 Rod Caughill testimony, March 13, 2013, pp. 1563, 1537–9; Rod Caughill testimony, March 19, 2013, p. 1801; Exhibit 35, p. 16.
- 219 Exhibit 420.
- 220 Rod Caughill testimony, March 13, 2013, p. 1549; Exhibit 424; Leistner testimony, March 27, 2013, p. 3263.
- 221 Rod Caughill testimony, March 13, 2013, p. 1549.
- 222 Exhibit 602.
- 223 Exhibit 602.
- 224 Exhibit 602; Exhibit 603; Kadlec testimony, March 6, 2013, pp. 320–1.
- 225 Kadlec testimony, March 6, 2013, pp. 243–9, 315–18.
- 226 Kadlec testimony, March 6, 2013, pp. 249–50.
- 227 Kadlec testimony, March 6, 2013, p. 251.
- 228 Exhibit 492.
- 229 Leistner testimony, March 27, 2013, p. 3278.
- 230 Leistner testimony, March 27, 2013, pp. 3281–2.
- 231 Rod Caughill testimony, March 13, 2013, pp. 1591–2.
- 232 Rod Caughill testimony, March 13, 2013, pp. 1563–4.
- 233 Snow testimony, April 3, 2013, pp. 3974, 4038.
- 234 Snow testimony, April 3, 2013, p. 3974.
- 235 Snow testimony, April 3, 2013, pp. 3975, 4011–18, 4036.
- 236 Rod Caughill testimony, March 13, 2013, pp. 1592, 1596–9; Exhibit 606; Snow testimony, April 3, 2013, pp. 3962, 3991, 3994–7.
- 237 Snow testimony, April 3, 2013, pp. 3970–1, 4004; Exhibit 2113.
- 238 Snow testimony, April 3, 2013, p. 3972.
- 239 Leistner testimony, March 27, 2013, pp. 3273–5.
- 240 Exhibit 609, p. 2.
- 241 Rod Caughill testimony, March 13, 2013, pp. 1587–8.
- 242 Leistner testimony, March 27, 2013, pp. 3299–300.
- 243 Exhibit 40.
- 244 Rod Caughill testimony, March 13, 2013, pp. 1565–6, 1574.
- 245 Rod Caughill testimony, March 13, 2013, pp. 1566–70.
- 246 Rod Caughill testimony, March 13, 2013, p. 1585.
- 247 Rod Caughill testimony, March 13, 2013, p. 1575.
- 248 Leistner testimony, March 27, 2013, p. 3310.
- 249 Exhibit 403; see also Leistner testimony, March 27, 2013, pp. 3301–8.
- 250 Exhibit 403; Leistner testimony, March 27, 2013, pp. 3306, 3309.
- 251 Exhibit 784, p. 16.
- 252 Leistner testimony, March 27, 2013, pp. 3312–13.
- 253 Exhibit 607.
- 254 Kadlec testimony, March 6, 2013, pp. 315–16.
- 255 Kadlec testimony, March 6, 2013, pp. 254–7.
- 256 Kadlec testimony, March 6, 2013, pp. 256–7.
- 257 Rod Caughill testimony, March 13, 2013, pp. 1575–6.
- 258 Rod Caughill testimony, March 13, 2013, p. 1577.
- 259 Rod Caughill testimony, March 13, 2013, pp. 1589–90.
- 260 Kadlec testimony, March 6, 2013, pp. 316–17.
- 261 Rod Caughill testimony, March 13, 2013, pp. 1590–1.
- 262 Leistner testimony, March 27, 2013, p. 3272.
- 263 Leistner testimony, March 27, 2013, p. 3274.
- 264 Leistner testimony, March 27, 2013, pp. 3272–3.
- 265 Leistner testimony, March 27, 2013, p. 3283.
- 266 Leistner testimony, March 27, 2013, p. 3298.
- 267 Exhibits 784, 785, 786, 787.
- 268 Leistner testimony, March 27, 2013, pp. 3314–15; Exhibit 1091.
- 269 Rod Caughill testimony, March 13, 2013, pp. 1600–1; Leistner testimony, March 27, 2013, p. 3316.
- 270 Exhibit 1091; Rod Caughill testimony, March 19, 2013, p. 1822.
- 271 Rod Caughill testimony, March 19, 2013, p. 1822.
- 272 Exhibit 611.
- 273 Rod Caughill testimony, March 13, 2013, pp. 1611–13.
- 274 Leistner testimony, March 27, 2013, pp. 3321–2.
- 275 Rod Caughill testimony, March 13, 2013, p. 1613.
- 276 Exhibit 11-12.
- 277 Exhibit 11-12; Pigeau testimony, March 22, 2013, p. 2608.
- 278 Fazekas testimony, March 12, 2013, pp. 1163–4.
- 279 Pigeau testimony, March 22, 2013, pp. 2609–11.
- 280 Bauthus testimony, March 26, 2013, pp. 2939–40.
- 281 Pigeau testimony, March 22, 2013, pp. 2563–4.
- 282 Pigeau testimony, March 22, 2013, p. 2565.
- 283 Pigeau testimony, March 22, 2013, p. 2566.
- 284 Pigeau testimony, March 25, 2013, p. 2781.
- 285 Burling testimony, April 2, 2013, pp. 3814–15.
- 286 Burling testimony, April 2, 2013, p. 3815.
- 287 Exhibit 461.
- 288 Dell'Aquila testimony, March 20, 2013, pp. 2185–9; Exhibit 1974; Exhibit 3104.
- 289 Exhibit 461, p. 976.
- 290 Exhibit 461, p. 968.
- 291 Exhibit 461, p. 983.
- 292 Exhibit 461, p. 968.
- 293 Exhibit 461, p. 978.
- 294 Exhibit 461, p. 968.
- 295 Exhibit 461, pp. 968, 978, 982.
- 296 Exhibit 461, p. 968.
- 297 Exhibit 35; Exhibit 461; Dell'Aquila testimony, March 20, 2013 pp. 2092–3, 2101–3, 2153–4, 2169–70; Iamonaco testimony, March 21, 2013, pp. 2449–50, 2452.
- 298 Exhibit 461, p. 983.
- 299 Exhibit 461, p. 969.
- 300 Exhibit 461, pp. 968, 983. See also p. 15 of the same exhibit.
- 301 Exhibit 461, p. 983.
- 302 Exhibit 461, p. 968.
- 303 Exhibit 45.
- 304 Rod Caughill testimony, March 14, 2013, pp. 1647–8.
- 305 Leistner testimony, March 27, 2013, p. 3326.
- 306 Exhibit 46, p. 857.
- 307 Exhibit 46, p. 860.
- 308 Exhibit 3007, p. 302.
- 309 NORR Panel testimony (Saffarini), May 30, 2013, pp. 12463–72.
- 310 Rod Caughill testimony, March 14, 2013, pp. 1645–6.
- 311 Rod Caughill testimony, March 19, 2013, p. 1828; Leistner testimony, March 28, 2013, pp. 3560–1; Exhibit 429, p. 870.
- 312 Exhibit 429, p. 868; Leistner testimony, March 28, 2013, pp. 3562–5; Rod Caughill testimony, March 19, 2013, p. 1841.
- 313 Leistner testimony, March 27, 2013, p. 3345.
- 314 Exhibit 429, p. 863.
- 315 Exhibit 381.
- 316 Exhibit 380.

- ³¹⁷ Leistner testimony, March 27, 2013, pp. 3360–2.
- ³¹⁸ Dennis testimony, April 30, 2013, pp. 7465.
- ³¹⁹ Jeffreys testimony, July 31, 2013, pp. 19272–6. Mr. Jeffreys’s credentials as an engineer, and his role as provincial engineer, are discussed at greater length in Volume 2 of this Report.
- ³²⁰ Exhibit 4125.
- ³²¹ RSO 1990, c O.
- ³²² Exhibit 4125; Dennis testimony, April 30, 2013, pp. 7467–8.
- ³²³ Dennis testimony, April 30, 2013, p. 7469.
- ³²⁴ Hudson testimony, July 8, 2013, pp. 14735–6, 14741–2.
- ³²⁵ *Occupational Health and Safety Act*, RSO 1990, c O, ss 8 and 9; Hudson testimony, July 8, 2013, pp. 14737–42; Exhibit 4125, p. 002. There are certain exceptions for smaller workplaces using designated substances.
- ³²⁶ *Occupational Health and Safety Act*, RSO 1990, c O, s 8(6).
- ³²⁷ Hudson testimony, July 8, 2013, p. 14739.
- ³²⁸ *Occupational Health and Safety Act*, RSO 1990, c O, s 9(26)(33); Exhibit 4125, p. 002.
- ³²⁹ Hudson testimony, July 8, 2013, pp. 14745–7; Dennis testimony, April 30, 2013, p. 7554; Regan testimony, June 5, 2013, p. 12982; Jeffreys testimony, July 31, 2013, pp. 19297–8.
- ³³⁰ *Occupational Health and Safety Act*, RSO 1990, c O, s 9(18); Exhibit 4125, p. 3.
- ³³¹ Dennis testimony, April 30, 2013, pp. 7548–9.
- ³³² *Occupational Health and Safety Act*, RSO 1990, c O, ss 9(20) and 9(21); Dennis testimony, April 30, 2013, p. 7552.
- ³³³ Dennis testimony, April 30, 2013, pp. 7553–7; Exhibit 12–46.
- ³³⁴ Exhibit 4125, pp. 005–006.
- ³³⁵ Exhibit 4125, p. 011.
- ³³⁶ Exhibit 4125, p. 011.
- ³³⁷ Dennis testimony, April 30, 2013, p. 7474.
- ³³⁸ Dennis testimony, April 30, 2013, p. 7476.
- ³³⁹ Regan testimony, June 5, 2013, pp. 12980–1; Dennis testimony, April 30, 2013, p. 7500.
- ³⁴⁰ Exhibit 4125, p. 006.
- ³⁴¹ Dennis testimony, April 30, 2013, p. 7481.
- ³⁴² Dennis testimony, April 30, 2013, pp. 7480–3.
- ³⁴³ Dennis testimony, April 30, 2013, p. 7482.
- ³⁴⁴ Dennis testimony, April 30, 2013, p. 7494.
- ³⁴⁵ Exhibit 4125, p. 009.
- ³⁴⁶ Dennis testimony, April 30, 2013, p. 7497.
- ³⁴⁷ Dennis testimony, April 30, 2013, pp. 7500–1.
- ³⁴⁸ Dennis testimony, April 30, 2013, pp. 7505–6.
- ³⁴⁹ Hudson testimony, July 8, 2013, p. 14747; Dennis testimony, April 30, 2013, p. 7470.
- ³⁵⁰ *Occupational Health and Safety Act*, RSO 1990, c O, s 57(1); Hudson testimony, July 8, 2013, pp. 14750–1.
- ³⁵¹ Hudson testimony, July 8, 2013, p. 14751.
- ³⁵² Dennis testimony, April 30, 2013, p. 7488.
- ³⁵³ Dennis testimony, April 30, 2013, pp. 7487–8; Exhibit 4125, pp. 006–7.
- ³⁵⁴ Dennis testimony, May 1, 2013, p. 7739.
- ³⁵⁵ Exhibit 4125, pp. 011–12.
- ³⁵⁶ Dennis testimony, May 1, 2013, p. 7675.
- ³⁵⁷ Dennis testimony, April 30, 2013, pp. 7478–80.
- ³⁵⁸ Hudson testimony, July 8, 2013, pp. 14759–60; Dennis testimony, April 30, 2013, p. 7511.
- ³⁵⁹ Exhibit 4125, p. 009.
- ³⁶⁰ Exhibit 4125, p. 009.
- ³⁶¹ Dennis testimony, May 1, 2013, pp. 7639–47; Dennis testimony, April 30, 2013, pp. 7511–4; Exhibit 4125, p. 7.
- ³⁶² Hudson testimony, July 8, 2013, pp. 14889–90.
- ³⁶³ Fazekas testimony, March 12, 2013, p. 1167; Regan testimony, June 5, 2013, pp. 12978–9.
- ³⁶⁴ Bauthus testimony, March 25, 2013, p. 3150.
- ³⁶⁵ Regan testimony, June 5, 2013, pp. 12967–74.
- ³⁶⁶ Regan testimony, June 5, 2013, pp. 12999–13002; Exhibit 3843.
- ³⁶⁷ Exhibit 3843.
- ³⁶⁸ Regan testimony, June 5, 2013, pp. 12999–13002, 13006.
- ³⁶⁹ Exhibit 3844.
- ³⁷⁰ Regan testimony, June 5, 2013, p. 13006.
- ³⁷¹ Exhibit 3844.
- ³⁷² Exhibit 3844.
- ³⁷³ Exhibit 3844.
- ³⁷⁴ Regan testimony, June 5, 2013, pp. 13006–8; Exhibit 3843.
- ³⁷⁵ Regan testimony, June 5, 2013, p. 13008.
- ³⁷⁶ Exhibit 1093.
- ³⁷⁷ Exhibit 1093.
- ³⁷⁸ Rod Caughill testimony, March 14, 2013, pp. 1664–5.
- ³⁷⁹ Exhibit 1093.
- ³⁸⁰ Rod Caughill testimony, March 14, 2013, pp. 1667–8.
- ³⁸¹ Exhibit 48.
- ³⁸² Exhibit 48; Rod Caughill testimony, March 14, 2013, p. 1669; Dell’Aquila testimony, March 20, 2013, pp. 2200–1.
- ³⁸³ Exhibit 51, p. 1 of 4 (Tobias Report).
- ³⁸⁴ Exhibit 51, p. 2 of 4 (Tobias Report).
- ³⁸⁵ Dell’Aquila testimony, March 20, 2013, pp. 2204–5.
- ³⁸⁶ Exhibit 51, p. 3 of 4 (Tobias Report).
- ³⁸⁷ Exhibit 51, p. 3 of 4 (Tobias Report); Dell’Aquila testimony, March 20, 2013, p. 2204.
- ³⁸⁸ Exhibit 51, p. 3 of 4 (Tobias Report).
- ³⁸⁹ Exhibit 51, p. 2 of 4 (Tobias Report).
- ³⁹⁰ Exhibit 51, p. 3 of 4 (Tobias Report).
- ³⁹¹ Exhibit 51, p. 4 of 4 (Tobias Report).
- ³⁹² Saffarini testimony, May 30, 2013, pp. 12437–8.
- ³⁹³ Saffarini testimony, May 29, 2013, pp. 12406–7.
- ³⁹⁴ Exhibit 51, p. 3 of 4 (Tobias Report).
- ³⁹⁵ Exhibit 51, p. 4 of 4 (Tobias Report).
- ³⁹⁶ Exhibit 51, p. 4 of 4 (Tobias Report).
- ³⁹⁷ Exhibit 51, p. 4 of 4 (Tobias Report).
- ³⁹⁸ Exhibit 51, p. 2.
- ³⁹⁹ Exhibit 51, p. 3.
- ⁴⁰⁰ Dell’Aquila testimony, March 20, 2013, pp. 2208–9.
- ⁴⁰¹ Exhibit 51, p. 3.
- ⁴⁰² Exhibit 51, pp. 3–4.
- ⁴⁰³ Dell’Aquila testimony, March 20, 2013, p. 2213.
- ⁴⁰⁴ Exhibit 51, p. 5.
- ⁴⁰⁵ Exhibit 51, p. 4.
- ⁴⁰⁶ Exhibit 51, pp. 4–5.
- ⁴⁰⁷ Exhibit 51, pp. 5–6.
- ⁴⁰⁸ Exhibit 51, p. 3.
- ⁴⁰⁹ Exhibit 51, p. 4; Dell’Aquila testimony, March 20, 2013, p. 2213.
- ⁴¹⁰ Dell’Aquila testimony, March 20, 2013, pp. 2213–15.
- ⁴¹¹ Dell’Aquila testimony, March 20, 2013, p. 2218.
- ⁴¹² Dell’Aquila testimony, March 20, 2013, pp. 2218–19.
- ⁴¹³ Dell’Aquila testimony, March 21, 2013, p. 2321.
- ⁴¹⁴ Dell’Aquila testimony, March 21, 2013, pp. 2218, 2342–3.
- ⁴¹⁵ Dell’Aquila testimony, March 21, 2013, p. 2324.
- ⁴¹⁶ Iamonaco testimony, March 21, 2013, pp. 2489–93, 2496, 2505, 2509.
- ⁴¹⁷ Iamonaco testimony, March 21, 2013, pp. 2510–12.
- ⁴¹⁸ Saffarini testimony, May 30, 2013, pp. 12442–3.

- 419 Saffarini testimony, May 30, 2013, p. 12568.
- 420 Saffarini testimony, May 30, 2013, pp. 12572–3.
- 421 Rod Caughill testimony, March 14, 2013, pp. 1678–9.
- 422 Leistner testimony, March 27, 2013, pp. 3379–82.
- 423 Leistner testimony, March 27, 2013, p. 3382.
- 424 Rod Caughill testimony, March 14, 2013, pp. 1679–80.
- 425 Leistner testimony, March 27, 2013, p. 3383.
- 426 Rod Caughill testimony, March 27, 2013, p. 1682.
- 427 Rod Caughill testimony, March 14, 2013, pp. 1681–6.
- 428 Rod Caughill testimony, March 14, 2013, p. 1685.
- 429 Leistner testimony, March 27, 2013, pp. 3365–69.
- 430 Saffarini testimony, May 30, 2013, p. 12440.
- 431 Dell'Aquila testimony, March 21, 2013, pp. 2292–8, 2300–3.
- 432 Rod Caughill testimony, March 13, 2013, pp. 1612–14; Leistner testimony, March 27, 2013, pp. 3377, 3386.
- 433 Snow testimony, April 3, 2013, pp. 3973–4.
- 434 Dell'Aquila testimony, March 21, 2013, pp. 2351–6.
- 435 Dell'Aquila testimony, March 21, 2013, pp. 2385–6.
- 436 Exhibit 3143.
- 437 Iamonaco testimony, March 21, 2013, pp. 2519–20.
- 438 Dell'Aquila testimony, March 21, 2013, pp. 2406–7.
- 439 Rod Caughill testimony, March 14, 2013, pp. 1721–2.
- 440 Leistner testimony, March 27, 2013, p. 3432.
- 441 Rod Caughill testimony, March 19, 2013, pp. 1988–91; Leistner testimony, March 28, 2013, p. 3627.
- 442 Exhibit 6-8.
- 443 Burling testimony, April 2, 2013, pp. 3805–6.
- 444 Exhibit 6-8.
- 445 Bauthus testimony, March 25, 2013, p. 2894.
- 446 Bauthus testimony, March 25, 2013, pp. 2895–6.
- 447 Bauthus testimony, March 25, 2013, p. 2899.
- 448 Bauthus testimony, March 25, 2013, p. 2907.
- 449 Exhibit 2082; Exhibit 2083; Leistner testimony, March 27, 2013, pp. 3388–91.
- 450 Exhibit 430.
- 451 Exhibit 1434.
- 452 Exhibit 1434; Regan testimony, June 5, 2013, p. 13009; Fazekas testimony, March 12, 2013, p. 1167.
- 453 Fazekas testimony, March 12, 2013, p. 1168.
- 454 Regan testimony, June 5, 2013, pp. 13007–8.
- 455 Exhibit 3845.
- 456 Exhibit 1434.
- 457 Exhibit 430.
- 458 Leistner testimony, March 27, 2013, pp. 3391–2.
- 459 Exhibit 430.
- 460 Leistner testimony, March 27, 2013, pp. 3402–3.
- 461 Exhibit 411.
- 462 Leistner testimony, March 27, 2013, pp. 3408–9.
- 463 Rod Caughill testimony, March 14, 2013, pp. 1689–92; Exhibit 430.
- 464 Exhibit 52.
- 465 Exhibit 410.
- 466 Exhibit 410.
- 467 Exhibit 410.
- 468 Rod Caughill testimony, March 14, 2013, pp. 1694–7.
- 469 Meyer testimony, April 4, 2013, pp. 4047–8.
- 470 Meyer testimony, April 4, 2013, pp. 4051–2.
- 471 Meyer testimony, April 4, 2013, pp. 4049–52.
- 472 Exhibit 455; Rod Caughill testimony, March 14, 2013, pp. 1699–1700.
- 473 Exhibit 455; Meyer testimony, April 4, 2013, pp. 4065, 4074–5.
- 474 Rod Caughill testimony, March 14, 2013, pp. 1702–3; Leistner testimony, March 27, 2013, pp. 3415–7.
- 475 Meyer testimony, April 4, 2013, pp. 4066–8; Exhibit 410.
- 476 Meyer testimony, April 4, 2013, pp. 4058–62, 4069–70; Exhibit 2084; Exhibit 410.
- 477 Meyer testimony, April 4, 2013, pp. 4069–72.
- 478 Rod Caughill testimony, March 14, 2013, pp. 1702–3.
- 479 Meyer testimony, April 4, 2013, pp. 4116–18.
- 480 Meyer testimony, April 4, 2013, pp. 4118–19.
- 481 Meyer testimony, April 4, 2013, p. 4120.
- 482 Meyer testimony, April 4, 2013, pp. 4121–8.
- 483 Meyer testimony, April 4, 2013, pp. 4065, 4075; Exhibit 60; Exhibit 63.
- 484 Rod Caughill testimony, March 20, 2013, p. 2066; Exhibit 60.
- 485 Exhibit 60.
- 486 Meyer testimony, April 4, 2013, pp. 4137–40.
- 487 Exhibit 63; Meyer testimony, April 4, 2013, pp. 4078–9.
- 488 Meyer testimony, April 4, 2013, pp. 4146–9.
- 489 Meyer testimony, April 4, 2013, pp. 4188, 4190–1.
- 490 Meyer testimony, April 4, 2013, pp. 4075, 4080.
- 491 Exhibit 65.
- 492 Exhibit 65.
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- 494 Exhibit 65.
- 495 Exhibit 65.
- 496 Exhibit 65.
- 497 Exhibit 65.
- 498 Meyer testimony, April 4, 2013, pp. 4093–4.
- 499 Meyer testimony, April 4, 2013, p. 4096; Exhibit 1876.
- 500 Meyer testimony, April 4, 2013, pp. 4096–7; Exhibit 1876, “S3.”
- 501 Meyer testimony, April 4, 2013, p. 4096–7.
- 502 Exhibit 65.
- 503 Exhibit 65.
- 504 Exhibit 65.
- 505 Meyer testimony, April 4, 2013, p. 4232.
- 506 Exhibit 65.
- 507 Caughill testimony, March 14, 2013, pp. 1717–20; Exhibit 454.
- 508 Caughill testimony, March 14, 2013, pp. 1745–6.
- 509 Leistner testimony, March 27, 2013, pp. 3418–24.
- 510 Leistner testimony, March 27, 2013, pp. 3267–8.
- 511 Leistner testimony, March 27, 2013, p. 3395.
- 512 Leistner testimony, March 27, 2013, p. 3402.
- 513 Leistner testimony, March 27, 2013, p. 3433.