

Ontario

Report of the Elliot Lake Commission of Inquiry

Executive Summary

The Honourable Paul R. Bélanger
Commissioner



Report of the Elliot Lake Commission of Inquiry

Executive Summary

The Honourable Paul R. Bélanger
Commissioner

The Report consists of three volumes:

1. The Events Leading to the Collapse of the Algo Centre Mall;
2. The Emergency Response and Inquiry Process; and
3. Executive Summary.

Ontario Ministry of the Attorney General

ISBN 978-1-4606-4566-6 (PDF)

ISBN 978-1-4606-4565-9 (Print)

© Queen's Printer for Ontario, 2014



Recycled
paper

**THE ELLIOT LAKE
COMMISSION OF INQUIRY**

The Honourable Paul R. Bélanger,
Commissioner



**LA COMMISSION
D'ENQUETE ELLIOT LAKE**

L'honorable Paul R. Bélanger,
Commissaire

October 15, 2014

The Honourable Madeleine Meilleur
Attorney General of Ontario
Ministry of the Attorney General
720 Bay Street, 11th Floor
Toronto, ON
M5G 2K1

Dear Madam Attorney,

I am pleased to deliver to you the Report of the Elliot Lake Commission of Inquiry in both its English and French versions, as required by the Order in Council creating the Inquiry.

Part One examines the events leading up to the collapse of the Algo Centre Mall in Elliot Lake on June 23, 2012 and Part Two looks at the emergency response to the collapse. Both volumes contain my recommendations for changes to rules, regulations, practices and procedures related to the maintenance and inspection of publicly accessible buildings and the emergency response to disasters. The third volume is an executive summary.

I hope that the Report will lead to a safer Ontario.

It has been an honour and a privilege to serve as Commissioner.

Yours very truly,

A handwritten signature in blue ink, appearing to read "Paul R. Bélanger".

Paul R. Bélanger
Commissioner



Executive Summary

- Part One: The Events Leading to the Collapse of the Algo Centre Mall 1**
 - A brief summary of my Part One recommendations 31
- Part Two: The Emergency Response 37**
- Inquiry Process 62**
 - A brief summary of my Part Two and Inquiry Process recommendations 62

•
• ***To the residents of Elliot Lake***
•

• *I thank you. Your personal and collective sacrifices are*
• *recognized throughout this Report. This community,*
• *at both the official and the individual levels, has made*
• *me and all members of the Commission feel welcome,*
• *appreciated, and at home in this beautiful and unique*
• *city. We will not forget the people of Elliot Lake. I have*
• *no doubt that the resilience this city has shown so many*
• *times before in its short boom-and-bust history will help*
• *it to pick up the pieces from this tragedy.*
•

The Events Leading to the Collapse of the Algo Centre Mall

- Summary of conclusions 4**
- The history of Elliot Lake 5**
- The causes of the collapse..... 6**
- Construction of the Algo Centre Mall..... 6**
 - Professional involvement.....7
 - The role of the Town of Elliot Lake during construction7
 - The parking deck.....7
 - The hollow core slabs7
 - The concrete topping 8
 - Confusion about the actual load-carrying capacity of the hollow core slabs 8
 - Expansion joints 8
 - The crack-control joints 8
 - The placement of the insulation 9
 - The Harry S. Peterson waterproofing system.....9
 - 1980–5: The Harry S. Peterson warranty years10
- Elliot Lake’s Property Standards By-law: complaint-driven and not enforced..... 10**
- 1986–99: The leaks persist until Algocen decides to sell the problem..... 10**
- The sale to Retirement Living: new owner, no new solutions..... 11**
 - Retirement Living purchased the Mall in a secretive process12
 - Retirement Living could have afforded to fix the roof but chose not to.....13
 - A secretive City administration turns a blind eye to the leaks14

2005–12: The Eastwood years	14
2005: Eastwood purchases a “black hole” it could nevertheless have afforded to repair	14
2005–7: Eastwood ownership begins; the City takes action but fails to follow up on its Notice of Violation	15
2008: Much talk and deception, but no action to fix the leaks	16
2009: The City issues another order – with no results	17
2010 to December 2011: Eastwood cannot sell the Mall and will not fix the roof; the City receives more warning signs	18
2012: Two more inspections – and two more missed opportunities	19
General conclusions	22
Steel rusts	22
The Algo Mall’s design was ill conceived	22
The basic concept was faulty	22
The roles of the architect, the engineer, and the owner were confused and unorthodox	22
The building, excluding the waterproofing system, met the then-current requirements of the <i>Building Code</i> , but the roof design was defective	23
After construction: the role of the engineering and architectural professions during the existence of the Algo Mall	23
After construction: the role of the owners	25
Algocen: 1979–99	25
Elliot Lake Retirement Living: 1999–2005	25
Eastwood Mall Inc. and Bob Nazarian: from 2005 to the Mall collapse	26
After construction: the role of the City of Elliot Lake	26
The Ministry of Labour	28
Summary	28
Addendum	28
The anonymous letter	28
The report	28
The unpublished chapters	29
The government’s reply submissions	30
Conclusion	30
A brief summary of my Part One recommendations	31

*Part One of the Report is dedicated to the memory of
Doloris Perizzolo and Lucie Aylwin – the two women who died
in the collapse of the Algo Mall on June 23, 2012.*



On June 23, 2012, at precisely 2:18 p.m., the heart of Elliot Lake, Ontario, stopped beating. A portion of the rooftop parking deck of the Algo Mall collapsed onto the two floors below, sending tons of concrete, mangled steel, drywall, glass, and one vehicle crashing down. Large pieces of steel and concrete (“widow makers,” the rescuers called them) hung precariously over the huge pile of debris. The fallen escalators were barely held up by overstressed beams, threatening to drop further at any moment.

The collapse was precipitous and came without warning. It shattered the city and transfixed the nation. It also took the lives of Doloris Perizzolo and Lucie Aylwin. Nineteen other people were injured.

For the next 48 hours, local firefighters, along with search and rescue teams from Toronto and the Ontario Provincial Police, feverishly searched the rubble pile for survivors. They were encouraged by tantalizing indications that someone, miraculously, might still be alive under the wreckage.

Then, suddenly, the rescue effort was halted – the risk of harm to the rescuers was deemed to be too great. Engineers advised that the entire remaining structure of the Mall was dangerously unstable. Unfortunately, no alternative plan had been developed, and, without direction, the rescuers gave up. Only after Premier Dalton McGuinty intervened on June 25 did the rescue operation resume, in the faint but rekindled hope that a specialized long-reach crane trucked in from Toronto might allow the removal of the material lying on top of the suspected victims without risking the lives of the rescuers. Tragically, despite unremitting work over two more days, that effort proved to be in vain when the bodies of the two women were recovered on June 27.

The Algo Mall was more than a shopping centre in this Northern Ontario city – it was a gathering point for the thousands of retirees who had settled there and an economic hub offering all residents a number of centralized services. It housed federal and provincial offices, the municipal Library, and the offices of the local MPP and the local MP. It had a hotel, a food court, a funeral services firm, numerous retail stores, and a lottery kiosk.

Almost from the day the Mall was built in 1979, the roof leaked. Some local residents dubbed it the Algo Falls. Buckets and tarps became part of its architecture. The Library, in particular, was so often inundated with leaking water that the integrity of its staff, its patrons, and its collections became a matter of daily concern for its governing board.

Six days after the collapse, Premier McGuinty announced that an independent public inquiry would be held into the disaster. Pursuant to Order in Council 1097/2012, I was directed to

- (a) Inquire into and report on events surrounding the collapse of the Algo Centre Mall in Elliot Lake, Ontario, the deaths of Lucie Aylwin and Doloris Perizzolo and the injuries to other individuals in attendance at the mall, and the emergency management and response by responsible bodies and individuals subsequent to the collapse;
- (b) Review relevant legislation, regulations and by-laws and relevant policies, processes and procedures of provincial and municipal governments and other parties with respect to the structural integrity and safety of the Algo Centre Mall in Elliot Lake, Ontario;

- (c) Review relevant legislation, regulations and by-laws and relevant policies, processes and procedures of provincial and municipal governments and other parties with respect to the emergency management and response to the collapse of the Algo Centre Mall.

The Inquiry was conducted in two parts. The first part, which examined the events leading up to the collapse, entailed a detailed study of the 33-year history of the Mall. The second part looked at the emergency response that followed. After the hearings were completed, I held roundtables where I invited several experts to assist me in formulating my recommendations.

This Commission's role is not to castigate or chastise; its only purpose in finding fault, if it must, is to seek to prevent recurrence. Criticism of prevailing practices serves only to suggest their improvement or, if necessary, elimination. Any commission's report is, by its very nature, a forward-looking document. Its dissection and analysis of past events, its quest for expert opinion, and its examination of best practices have only one purpose: to put forward an opinion, in the form of recommendations, on how best to improve the current situation.

Summary of conclusions

Although it was rust that defeated the structure of the Algo Mall, the real story behind the collapse is one of human, not material, failure. Many of those whose calling or occupation touched the Mall displayed failings – its designers and builders, its owners, some architects and engineers, as well as the municipal and provincial officials charged with the duty of protecting the public. Some of these failings were minor; some were not. They ranged from apathy, neglect, and indifference through mediocrity, ineptitude, and incompetence to outright greed, obfuscation, and duplicity. Occasional voices of alarm blew by deaf and callous ears. Warning signs went unseen by eyes likely averted for fear of jeopardizing the continuing existence of the Mall – the social and economic hub in Elliot Lake.

Some engineers forgot the moral and ethical foundation of their vocation and profession – to hold paramount the safety, health, and welfare of the public. They occasionally pandered more to their clients' sensitivities than to their professional obligation to expose the logical and scientific consequences of their observations. Some of their inspections were so cursory and incomplete as to be essentially meaningless. Others were fundamentally flawed because they were based on false assumptions or calculations.

Some engineers forgot the moral and ethical foundation of their vocation and profession – to hold paramount the safety, health, and welfare of the public.

Some public officials simply lacked competence. Others preferred strict adherence to, and narrow interpretation of, practices, rules, and by-laws rather than conduct based on a meaningful interpretation of their spirit and intent. The institutional and legal relationship among organizations meant to advance the public good operated to disenfranchise the City's electorate and may have led to tolerating unacceptable conditions at the Mall. Secrecy and confidentiality often trumped candour, transparency, and openness. They pervaded contractual and professional relationships, and even the municipal administration sought to hide some of its activities from public view.

Based on any fair and objective analysis of the history of the Algo Mall as it unfolded during the Commission's hearings, it is difficult to resist the conclusion that, if any one of the owners, engineers, or officials who were involved with the Mall over its 33 years of existence had insisted, "Enough – this building will fail if it isn't fixed," two lives would not have been senselessly and tragically lost. A few people did just that, but they were ignored. Instead, faced with the clearest of warning signs, owners sold or attempted to sell the problem instead of fixing it. They opted for the narrowest of interpretations of engineering reports – always the least expensive solution

that merely repeated past feeble and ineffectual remedies. Many witnesses averred that they were unaware of one of the most basic and widely understood tenets of material science: a combination of water, air, and chlorides makes steel rust; and continuously rusting steel gets progressively weaker as time goes by.

Stated in the broadest of terms, my main conclusions are as follows:

- Two people died and approximately 19 were injured after a portion of the Algo Mall collapsed on June 23, 2012.
- The collapse was due to the sudden failure at 2:18 p.m. of a connection between one beam and one column of the steel substructure below the parking deck of the Mall.
- The failure was the result of the continual and uninterrupted ingress of water and chlorides from the parking deck of the Mall ever since its construction in 1979, resulting in severe corrosion of the connection.
- The ingress was the result of a faulty initial design combined with inadequate and incompetent maintenance and repair of the surface of the parking deck.
- There were many complaints over the years about the leaking deck and falling pieces of the ceiling.
- Municipal authorities ignored repeated complaints and warnings about leaks and material failure.
- Municipal authorities did not enforce, or improperly enforced, their own property standards by-laws. Some public officials were apparently unaware of the contents of their own by-laws. The municipality's predominant focus was non-interference with the Mall – because it was regarded as the social hub of the community and as a major source of tax revenue and employment.
- Despite the involvement of the Ministry of Labour with the Mall during most of its existence, its employees never treated the leakage situation with much interest and concern.
- Some structural engineers failed to inspect the Mall properly. Engineering reports were of uneven quality, often drafted more with an eye to pleasing clients than proposing effective solutions or warning of potential dangers.
- Owners chose cheap and ineffective repairs or opted to sell the Mall when faced with significant repair bills. They actively concealed their knowledge of the parking deck's condition from the City and from subsequent purchasers.
- The last owner (Eastwood Mall Inc.) actively misrepresented the repair work it engaged in and resorted to subterfuge and falsehood to mislead authorities, tenants, and the public.

The history of Elliot Lake

Elliot Lake owes its existence to uranium mining, but this reliance led to years of boom and bust in a single-industry community. By the time the last mine closed in 1996, the local civic and business community had already devised a new economic strategy for the City – it would reposition itself as a retirement living community. Vacant homes were marketed and sold or rented to retirees, and thousands of new residents arrived to stabilize the population and the economy, now based on tourism, cottaging, retirement, and health care.

The Algo Mall was central to the retirement-living strategy and an important part of the City's overall economic well-being. It was a shopping centre and social destination as well as a source of employment and tax revenue. But there was one problem – it wouldn't stop leaking.

The causes of the collapse

The ultimate cause of the collapse was painfully simple: After more than 30 years of unabated exposure to constant wetting and drying conditions in the presence of chlorides, a weld rusted to the point where it gave out. It had become so depleted from corrosion that, at the time of collapse, it had only 13 percent of its original capacity. A car seen in video footage driving over the area in the seconds before the collapse was the proverbial “straw that broke the camel’s back.”

Extensive corrosion was found throughout the Mall. Indeed, the estimated rate of corrosion over the years was similar to that found in the ballast tank of a ship. At a number of locations, the structural steel components had lost as much as 20 percent of their thickness – a process termed “loss of section” by engineers. This extreme condition meant the loss of structural capacity and the need for immediate repairs in order for the Mall to remain operational.

The building had been designed with the intent to “shed or drain water effectively,” thereby satisfying the requirements of the 1975 Ontario *Building Code* in force at the time of construction. It soon became evident, however, that the waterproofing system installed was never able to provide a watertight roof for the Mall. The building leaked from the day it opened.

All three owners had the resources and could have acted to fix the leakage problem. None did. Their preferred option was to continue to patch and seal the cracks that developed on the roof, despite the obvious fact that the repairs were not working.

Given the immediate evidence of failure, the various owners should have taken early and effective remedial measures. The Mall could have been saved if its first and second owners had installed a full waterproofing membrane, but by the time the final owner purchased the Algo Centre in 2005, corrosion of the steel had likely progressed to the point where it would have been necessary to retrofit and strengthen the structural steel before installing a membrane.

All three owners had the resources and could have acted to fix the leakage problem. None did. Their preferred option was to continue to patch and seal the cracks that developed on the roof, despite the obvious fact that the repairs were not working.

Construction of the Algo Centre Mall

In 1979, Algocen Realty Holdings Ltd. (Algocen) constructed the Algo Centre, which included the Algo Mall and the Algo Inn Hotel, and owned it until it sold in 1999. The Mall’s structure was designed and constructed with steel beams and columns combined with pre-stressed, precast hollow core concrete slabs. It had three levels: an upper level (second floor) with the roof above it; a lower level (first floor) for most of the Mall; and a basement level at the east end of the Mall. Embedded in the north end of the Mall was the six-storey Hotel, with four of its floors rising above the Mall.

Algocen made the decision to use the Mall’s roof as an unsheltered 334-space parking lot. This use presented significant challenges when it came to keeping the retail space dry below. Algocen opted for a waterproofing system that was an untried variant of a system used elsewhere. The system failed almost immediately.

I heard extensive evidence about the construction of the Algo Centre and the installation of the waterproofing system. I set out below a summary of the evidence necessary to understand why the waterproofing system failed and how it could have been fixed.

Professional involvement

James W. Keywan prepared the architectural design for the Algo Centre. The structural design was stamped by John J. Kadlec, P.Eng. The hollow core slabs were manufactured and installed by Coreslab Inc.

Algocen received warnings before construction began about the potential for the parking deck to leak. It also received advice to over-engineer the system to allow for repairs down the road should the system fail. The warnings and advice were ignored for reasons of cost and land availability.

Professional involvement with the construction of the Algo Mall was such that no one individual was responsible for its overall construction. The architect's mandate was limited to preparation of the architectural drawings, while the engineer handled the structural design. Algocen acted as its own general contractor. Harry S. Peterson Company (HSP), a Michigan-based firm, was in charge of designing and applying the waterproofing system. No single "prime consultant" oversaw the whole design and construction.

On August 5, 1980, despite their limited mandates and knowledge of the actual construction, both Mr. Keywan and Mr. Kadlec signed and sealed a document, addressed to the Building Department of the Town of Elliot Lake, indicating that the Algo Centre was substantially complete. Mr. Keywan had not viewed inspection reports and had never even been to the site. The Mall had in fact been leaking for months when the document was signed.

The role of the Town of Elliot Lake during construction

The Town of Elliot Lake's Building Department was responsible for enforcing the Ontario *Building Code* during construction. However, the evidence I heard was that the department was under-staffed and seemed focused on expediting development of the Mall. The initial building permit was issued based on absent or incomplete drawings. There was no final inspection, and the Town likely relied on the letter of substantial completion from the architect and engineer to allow occupancy.

The parking deck

The parking deck was constructed using hollow core slabs that rested on steel beams. From bottom to top, the constituent elements of the deck consisted of the insulation below the slabs, the hollow core slabs, a concrete topping, control joints tooled into the concrete topping, and expansion joints to allow for expansion and contraction. As I will explain, these elements were meant to work together as a cohesive waterproofing system.

The hollow core slabs

The hollow core slabs for the Algo Centre were supplied by Coreslab Inc. They sat on top of the steel framing and were 8 inches deep, 4 feet wide, and typically 30 to 31 feet in length. The slabs had hollowed-out cores, making them lighter in weight than solid concrete. To provide compensatory strength, pre-stressed, half-inch steel cables were set within the concrete during manufacture. The concrete used was a very dry, solid, and dense mix that holds its form once produced.

The hollow core slabs of the parking deck were constructed and placed so that the bottom parts of the long side of the slabs abutted one another and the top side opened up in a "V" shape. This space was filled with grout to form a grout key. The spacing at the butt ends (the ends that were 4 feet in width) was left ungrouted to allow for expansion, contraction, and cambering.

Hollow core slabs are meant to be a structural element, not to serve as a waterproofing function on their own. Because the concrete used in making them is susceptible to temperature changes and is not designed to go through the freeze–thaw cycle, Coreslab does not recommend that they be left outside the building envelope. At the Algo Centre, the slabs were not protected by insulation, and, inevitably, they were also exposed to chlorides from road salt, which is corrosive to concrete. Moreover, corrosion of the steel strands in the slabs can cause them to rust, lose strength, and expand, which in turn causes the surrounding cement to break apart.

The concrete topping

A concrete “topping” or “wearing course” was poured directly on the surface of the hollow core slabs in the parking area of the Mall. As part of the waterproofing design, the topping was to act “compositely” – as a unified connected whole – with the slabs. The effect of this composite action was to increase the capacity of the slabs, provided that the bond between the slabs and the topping remained intact.

The general thickness of the concrete topping was 3 to 4 inches, but its depth varied across the roof of the parking deck in order to create a sloping surface toward the roof drains and to assist with shedding water. The evidence showed that the sloping of the roof was poorly done, causing water to pool in numerous locations.

Confusion about the actual load-carrying capacity of the hollow core slabs

There was confusion about the actual load-carrying capacity of the hollow core slabs at the Algo Mall throughout the life of the Mall and in the evidence before the Commission. Mr. Kadlec’s structural drawings and Coreslab’s shop drawings both called for 8-inch hollow core slabs that were able to bear a weight (load) of 120 pounds per square foot (psf) on their own, without a composite topping. However, confusion would develop when, in later years, various owners and engineers consulted Coreslab load charts. These charts indicated that the load capacity of slabs of the size installed at the Mall was only 87 psf, not 120. This discrepancy between the load charts and the structural and shop drawings caused confusion.

Ultimately, I chose to leave this debate to the experts. I heard evidence which showed that, even assuming the slabs were under-designed, they could have supported a waterproofing system, assuming they were in good condition and were properly bonded to the concrete topping. The capacity of the slabs nevertheless proved a distraction, perhaps even an excuse, for owners faced with the need to install a proper waterproofing system.

Expansion joints

Three expansion joints were included in the design of the Algo Centre to allow room for the expansion and contraction of the building caused by temperature changes. At these locations, the steel and concrete were separated from the top down through the bottom of the structure and across the entire building span, thereby creating three separate structural entities. To prevent water entry at these junctions, the joints were sealed with a device capable of adjusting to thermal movement. Many witnesses who testified before the Inquiry reported that the expansion joints were a source of significant leaks in the Mall.

The crack-control joints

Additional joints, called crack-control joints, were created in the concrete topping of the parking deck. They were located above the grouted space between every third hollow core slab (along the long side of every third slab) and at the butt ends. These joints were specifically created as part of the waterproofing system.

The placement of the insulation

Insulation was placed underneath the hollow core slabs of the parking deck. This location left the slabs exposed to the freeze–thaw cycle and likely contributed to thermal movement of the slabs over the life of the Mall. Mr. Kadlec’s drawings had originally called for the insulation to be between the hollow core slabs and the topping. Given the type of waterproofing system installed at the Mall, this thermal movement of the hollow core slabs may have exacerbated water penetration at all joint locations.

The Harry S. Peterson waterproofing system

The waterproofing system applied to the Algo Mall was known within the roofing / parking business of that era as the “Peterson system.” It was typically applied by pouring a concrete slab not over hollow core slabs, but over large precast concrete members called “Double Tees.”

HSP had noticed that the concrete topping of decks of this type tended to crack at the joints where the underlying Double Tees abutted one another. HSP’s innovation to control this problem was to pre-crack the concrete above these joints. It would then apply sealant to these “crack-control joints.” HSP sometimes also applied a full waterproofing membrane between the concrete topping and the Double Tees, though not always. The system had worked well for HSP before the Elliot Lake project.

At the Algo Mall, HSP installed a new and untested variation of this system. At Algocen’s request, HSP was asked to apply the crack-control system above hollow core slabs instead of Double Tees. However, the Double Tees had a much larger surface area. Applying the crack-control system over the smaller hollow core slabs meant that there were many more joints and many more potential points for cracking.

The Algo Centre project was also the first time that HSP applied its waterproofing system to a single-level parking garage located directly above retail space and exposed to the elements without a full waterproofing membrane. In Elliot Lake, HSP applied only a thin strip of membrane at the joints. HSP’s theory at the time was that a full waterproofing membrane was not necessary. Surface sealant on the concrete topping, sealant in the crack-control joints, and a strip of membrane beneath the joints would be sufficient, HSP advised. It was not. Throughout the life of the Mall, water made its way through these layers of protection and into the building below. As it travelled, it also migrated laterally and broke apart the bond between the concrete topping and the hollow core slabs.

A final difference with the Peterson system as installed in Elliot Lake was that the crack-control joints were created only at every third grout strip and at the hollow core butt ends. Given that the hollow core slabs were smaller and more numerous than Double Tees, HSP figured at the time that too many crack-control joints would mean too much maintenance. The company believed there would be limited additional cracking where the other slabs abutted. As it turned out, almost all the concrete cracked above those points where the slabs met below.

In addition to its unique design features, because of other construction delays, HSP was forced to install the waterproofing system in wet, sub-zero, and snowy conditions. Installation in this weather had a negative impact on the system’s overall performance.

The waterproofing system used at the Algo Mall was a first and a last for Harry S. Peterson. It proved virtually impossible to maintain. It was unique, unprecedented, and untested, an experiment that failed. Years of band-aid solutions followed on behalf of all three owners of the Mall.

The waterproofing system used at the Algo Mall was a first and a last for Harry S. Peterson. It proved virtually impossible to maintain. It was unique, unprecedented, and untested, an experiment that failed.

1980–5: The Harry S. Peterson warranty years

The building started to leak immediately. Harry S. Peterson provided a five-year warranty and made every attempt to stop the leaks. The crack-control joints were reground and resealed. The expansion joints were repaired and eventually replaced entirely. A flood test of the whole roof was done, section by section. Nothing stopped the leaks. The owner and tenants resorted to stop-gap measures – plastic sheets, buckets, and catch basins. One of the tenants, Woolco, retained engineers, who as early as 1981 recommended a full waterproofing membrane.

HSP speculated that the leaks were caused by the movement of traffic across the hollow core slabs, causing them to flex, opening and closing the joints, breaking up the grout between the slabs, and allowing water through. The company soon concluded that it had chosen the wrong system and that it needed to be replaced entirely. This message was not conveyed to Algocen.

Elliot Lake's Property Standards By-law: complaint-driven and not enforced

The Building Department of the Town of Elliot Lake could have done something to stop the leaks. The Town had a Property Standards By-law with provisions requiring that an owner maintain every part of a building in a watertight and structurally sound condition. Virtually identical provisions existed throughout the life of the Mall.

Elliot Lake had a complaint-driven process rather than a program of routine, proactive inspections to enforce property standards. However, I saw little consistency to the approach taken by City officials in the administration of this policy. The overall approach created impediments to ensuring that the by-law was properly enforced.

In the early years of the Mall's existence, the Town did not receive any complaints from Mall tenants, patrons, or employees. No property standards orders were issued, and the Mall was never inspected because of the leaks. The chief building official, Roger Pigeau, knew the Mall leaked but, as justification for his inaction in the face of clear violations, he pointed to the fact that Algocen was working to repair the leaks and to the absence of complaints.

Mr. Pigeau's attitude was symptomatic of the City's wilful and blind disposition in relation to the Mall. It knew the Mall was leaking, yet chose to do nothing. Regrettably, throughout the years that Algocen owned the Mall, this approach would typify the City's reaction.

1986–99: The leaks persist until Algocen decides to sell the problem

For the rest of its ownership, Algocen carried on with a patch-and-seal solution to the leaks, despite the clear evidence that it did not work. Old caulking was removed from the crack-control joints, the cement was ground clean and primed, and new sealant was applied to the joints. These repair methods remained unchanged until the sale.

The City could have acted to compel the company to fix the leaks, but did not. In 1989, the Elliot Lake Public Library became a tenant of the Algo Mall. Over the years, the City was regularly made aware that the Library had become a major trouble spot for leaks, but it chose to turn a blind eye to their severity. The Library was an anchor tenant of the Mall, and the Mall's survival was seen as important to the community.

By 1990, the leaks had gotten worse. Algocen had concerns about the structural integrity of the building and eventually sought engineering advice. Trow Consulting Engineers Ltd. (Trow) conducted a detailed condition survey of the parking deck in 1991 and noted widespread cracks, leaks, and debonding. It also observed that the steel beams contained surface rust and missing fireproofing, the result of water incursion. At the time, however, Trow was not concerned about failure of the beams. The situation in 1991 was still manageable.

Trow informed Algocen that the waterproofing design was inappropriate and provided two options to install a proper membrane. Instead of heeding Trow's advice, Algocen questioned whether the waterproofing options were viable from a load perspective (related to the confusion about load capacity discussed above). However, instead of returning to Trow with questions or consulting other engineers, Algocen continued with the usual repairs. When Trow conducted a similar survey in 1994, it found evidence that the leakage was even more widespread. It warned Algocen that the corrosion would accelerate exponentially if the leaks were not stopped.

In 1995, Trow and the engineering firm of Alex Tobias Associates Limited informed Algocen that, even assuming the concrete topping needed to be bonded to the hollow core slabs, the parking deck could support the load of a 120 psf waterproofing system. Trow recommended this option, saying the other option – conducting the usual repairs – would address only a small percentage of the problem. Algocen again questioned the engineering advice, failed to follow up, and chose not to install a full membrane.

The Ministry of Labour, like the City of Elliot Lake, could also have required Algocen to fix the leaks. It inspected the Library in the Mall twice in 1995 for mould. In fact, it had an office in the Algo Centre Mall at the time. The ministry documented the prevalence of leaks in the Library but issued no orders to fix them. Ralph Regan, the inspector, even went so far as to suggest in testimony that there had been no violation of the *Occupational Health and Safety Act* because he had not seen actual water penetration – a position I found to be clearly untenable.

In 1996, Algocen received yet another opinion from an engineer (Paul Meyer) that a waterproofing membrane could be installed, as long as the weight was examined. Algocen either failed to notice or failed to heed this suggestion.

I conclude that the Mall's first owner, Algocen, was likely prepared to rely on any explanation available to justify not installing a membrane. It would have cost in excess of \$1 million to install one, in addition to the cost of business interruptions. Although the mine closures in Elliot Lake and the national recession created uncertain economic times in those years, I heard evidence that Algoma Central Corporation, Algocen's parent company, could easily have afforded to fix the roof. Instead, Algocen actively considered selling the Mall in the 1990s – and eventually it did.

I conclude that the Mall's first owner, Algocen, was likely prepared to rely on any explanation available to justify not installing a membrane.

The sale to Retirement Living: new owner, no new solutions

To implement Elliot Lake's retirement living program, the City created a not-for-profit corporation called the Retirement Residences of Elliot Lake (Retirement Living) in February 1991. Retirement Living in turn created a for-profit subsidiary, NorDev, for the purpose of owning and operating the Algo Mall and the Hotel. NorDev purchased the Algo Centre in 1999 and owned it until its sale in 2005.

Retirement Living purchased the Mall in a secretive process

The composition of the corporate membership of Retirement Living was structured to include representation from different interests in Elliot Lake. The Board of Directors originally included two members appointed by City Council, three tenants of Retirement Living, two members of the community at large, a member of the board of the local hospital, and nominees of the two mines.

The City and Retirement Living were clearly committed to the joint purpose of saving Elliot Lake from economic ruin. However, I was struck during the Inquiry by the conflicts created by the City's presence on the board of Retirement Living. Confidentiality obligations imposed on board members, including the City representatives, created a clear conflict of interest for the City when it came to enforcement of its Property Standards By-law. The City was, at the same time, the enforcer of its by-law, a virtual tenant of the Mall through the Library, and, by reason of its board membership, the Mall's (conceptual) owner.

In late 1997, Retirement Living began to consider purchase of the Algo Centre. The purchase process was a secretive one. It began when Mayor George Farkouh and Richard Kennealy, Retirement Living's general manager, learned that the Hotel would be closed down and that Algocen's commitment to the viability of the Mall was in doubt. The Mall and the Hotel were important to the community and to the retirement living program. The City and Retirement Living proposed that an assessment of the Algo Centre be done, to include a retail study and a physical inspection of the building by engineers. The City agreed to pay for the study, with the expectation that it would actually receive the property valuation and the building condition assessment. Ultimately, the City received neither one.

Algocen insisted on strict control over its information during the study, including reports on the physical condition of the building. Before releasing any information to Retirement Living as a prospective purchaser, Algocen imposed a non-disclosure agreement that prohibited, without its permission, the disclosure of information from the process to anyone other than Mr. Kennealy and Rhona Guertin, the finance and business development manager. Consequently, Mr. Kennealy could not even report to his board without Algocen's permission.

During the purchase process, Retirement Living commissioned and received a building condition assessment from Nicholls Yallowega Bélanger (NYB) and Halsall Associates Ltd. (Halsall). Despite being asked, Algocen did not provide the reviewing engineers with previous engineering reports. Late in 1998, NYB and Halsall produced a report that described the corrosion of beams and columns in the Mall as a result of pervasive leaks and that raised concerns about the structural integrity of the concrete slabs. Halsall advised that more study was needed to understand the true state of the parking deck. NYB proposed two repair options, both of which included the installation of a full waterproofing membrane.

The City was never provided with the NYB and Halsall report. The full report was also not provided to the Retirement Living Board of Directors, which included the two City representatives. Instead, the board members were falsely told by Mr. Kennealy and Ms. Guertin that the building was structurally sound and had been well maintained.

Retirement Living made the decision to purchase the Mall. The Hotel showed losses, but the Mall's revenues were positive. In keeping with the aura of secrecy surrounding the whole purchase, City Council was told the news at a secret and illegal meeting with Retirement Living. Council was elated. Retirement Living's Board of Directors provided final authorization for the purchase of the Algo Mall on December 30, 1998.

Retirement Living could have afforded to fix the roof but chose not to

Although Retirement Living wished to purchase the Algo Centre, it was clear even before the sale that it had decided not to spend the money necessary to fix the roof properly. None of the capital expenditures being contemplated at the time included the installation of a proper membrane. Retirement Living thought it could simply continue with the same maintenance process that Algocen had followed.

Halsall produced a follow-up report in May 1999, which provided Retirement Living with further justification for its decision not to install a full membrane. Despite noting corrosion of the steel support beams, debonded concrete topping, and other evidence of widespread leaks, Halsall did not insist in its report on the need to install a full waterproofing membrane. Instead, it used language that clearly favoured the option of simply repairing the cracks on the roof, albeit with the guiding assistance of engineers to ensure it was done correctly. This latter point was not made explicitly clear in the report.

Halsall should have insisted on the full membrane and warned against the risks of structural deterioration if the roof was not properly fixed. Instead, Retirement Living, already predisposed to the idea, took the report as evidence that the building was structurally sound and that repairs could continue in the usual manner.

In June 1999, Retirement Living purchased the Mall from Algocen on an “as-is” basis for \$4 million. Notwithstanding the language in the Halsall report calling for engineered services to repair the cracks, Retirement Living decided to continue with the previous course of repairs, using Mall maintenance staff only.

Retirement Living witnesses at the hearings insisted that the leaks were minimal by the time of the Mall’s eventual sale in 2005, but I heard ample evidence to the contrary. Retirement Living may have kept the Mall clean and made other improvements. It may also have been a diligent landlord in responding to leaks. There is no doubt, however, that water continued to infiltrate the Mall, and that buckets, tarps, and other expedients were necessary to cope with the leaks throughout its ownership.

In 2003, Randy Beltramin, a structural engineer from STEM Engineering, did some work at the Mall. During that investigation, he expressed clear concern to Bruce Caughill about Retirement Living’s maintenance practices. Mr. Caughill, an architect who was often consulted by Retirement Living during the years it owned the Mall, was also the brother of Rod Caughill, a former development supervisor for Algocen. Mr. Beltramin therefore warned Bruce Caughill that, if Retirement Living persisted in its current maintenance practices, the structure would slowly deteriorate and would need to be repaired to avoid failure. Mr. Caughill, however, did not pass these concerns along to Retirement Living.

Retirement Living would profit handsomely during its ownership of the Mall and from the eventual sale. Despite having sufficient financial resources, and despite persistent complaints from tenants, Retirement Living never properly repaired the parking deck. Retirement Living should have invested more to fix the roof. If it had, the events of June 23, 2012, might have been avoided.

Retirement Living would profit handsomely during its ownership of the Mall and from the eventual sale. Despite having sufficient financial resources, and despite persistent complaints from tenants, Retirement Living never properly repaired the parking deck.

A secretive City administration turns a blind eye to the leaks

Through the years that Retirement Living / NorDev owned the Mall, the City continued to turn a blind eye to the true extent and consequences of the leaks. The leaks were particularly heavy in the Library. The City knew about them and had the power to enforce its Property Standards By-law to address them. It did not.

I also heard evidence that, during these years, there was a culture of secrecy within the civic administration. The City of Elliot Lake adopted the practice of scheduling “caucus meetings” – meetings of City Council that were held without notice to the public. There council members discussed, secretly and behind closed doors, matters that the *Municipal Act* required be discussed in public. This practice began in 1994 and ended only in July 2006, following legal advice that these meetings were improper. They were a vehicle designed to meet and discuss matters free from irksome public scrutiny.

The relevance of the discussions that took place at the caucus meetings can only be speculative. Because no records were kept, I am not able to determine the extent to which the leaking of the Mall generally, and at the Library specifically, was discussed. I do know that the City was told of Retirement Living’s intent to purchase the Algo Centre at a secret meeting, and I heard evidence that the leaks were discussed during at least one caucus meeting. Whatever the case, it is certain that the electorate was disenfranchised by the process. Moreover, it was part of a disturbing pattern on the part of those charged with the stewardship of the public good in Elliot Lake. The general public was not deemed to have a “need to know.”

2005–12: The Eastwood years

2005: Eastwood purchases a “black hole” it could nevertheless have afforded to repair

Eastwood Mall Inc. (Eastwood) bought the Algo Centre in August 2005 and owned it on June 23, 2012, the day of the collapse. The corporation was wholly owned by Bob Nazarian, who had owned apartment buildings and shopping centres in the past. The Mall’s income and anchor tenants piqued his interest, and he made a quick offer to purchase.

Mr. Nazarian was not a credible witness, and throughout the time he owned the Mall, he and his older son engaged in conduct that was often deliberately deceptive and unscrupulous. However, the evidence I heard convinced me that he purchased the Mall without understanding the true extent of the leaks. Retirement Living did not provide him with the engineering reports it had, and Mr. Kennealy told him that the leaks could be controlled by proper maintenance – something that was simply not true.

For his part, Mr. Nazarian was clearly not cautious or prudent during the acquisition. He visited the Mall on a fine day when the leaks may not have been evident. He did not hire his own engineer to inspect the Mall, instead relying on the fact that an inspection had been carried out on behalf of his lender, the Royal Bank of Canada (RBC). He did not ask to see the actual inspection report before the purchase.

The bank’s inspector also failed to grasp the severity of the situation at the Mall. His inspection was conducted on a dry summer day. It was visual only, and the inspector felt he was not even allowed to look above the ceiling tiles. He did not receive previous engineering reports, did not speak to tenants, and was not told of the 25 years of past leakage. Indeed, he was told the parking deck was watertight when in truth the tenants were complaining about leaks even during the due diligence period.

After negotiating the price down from \$8.2 to \$6.2 million, and after a letter of assurance from Mayor Farkouh (who was, unbeknownst to Mr. Nazarian, on Retirement Living's Board of Directors), Mr. Nazarian purchased the Algo Centre on an "as-is" basis.

Eastwood purchased a fundamentally flawed structure that was in dire need of proper repair. Once he realized the extent of the problem, Mr. Nazarian had the funds to fix the roof. The different companies he owned had significant assets and were profitable. He himself admitted he could have invested more in the Algo Centre but chose not to. When asked why he did not, he replied, "The Algo Mall was a black hole . . . that mall was doomed."

2005–7: Eastwood ownership begins; the City takes action but fails to follow up on its Notice of Violation

Eastwood resorted to the same methods of repair as the previous owners. The evidence of the tenants, who complained often to the owner, was that the leaks got worse during Eastwood's ownership. Mr. Nazarian learned how serious the leaks were and, instead of trying to fix them properly, showed interest in selling the Mall from an early stage. Although he repeatedly promised tenants he would repair the roof, he simply continued with the patch-and-seal approach.

The City did nothing in 2005 and throughout most of 2006. Its complaint-driven enforcement policy continued in its characteristic rigid and inactive mode. The Library made several complaints to the City, but nothing was done. Finally, the influence of a newcomer to Elliot Lake caused the City to take its first official action with regard to the leaks.

On October 10, 2006, Tom Derreck began his duties as the City's chief administrative officer. He quickly learned that the leaks were a long-standing and serious problem at the Mall. Indeed, he was copied on an email from one councillor, Cathy McTaggart, who prophetically wrote on October 16, 2006, "The thing that I am really worried about is the possibility of the roof caving in with cars parked up there."

Mr. Derreck decided to act, and he did what no City officials had done before. He went to the Building Department to ask the chief building official of the day, Syl Allard, to inspect the Library. The subsequent inspection revealed widespread evidence of leaks. Mr. Allard specifically stated in his inspection report that, if the leaks continued, they might have an adverse impact on the structural elements and connections.

A Notice of Violation was issued in October 2006, albeit not without some internal discord. Mayor Farkouh warned Mr. Derreck that, if the Mall was forced to shut down for a period, the closure would have a negative impact on the community. Mr. Derreck took pains to reassure City Council that this much-feared result would not happen.

Sadly, the City did nothing to enforce the 2006 Notice of Violation. It required that the leaks be repaired and that a professional engineer review the structural frame and prescribe a fix. Neither action was done. Mr. Derreck was soon replaced, and Mr. Allard retired not long thereafter. Mr. Nazarian stalled on repairs, refused to hire an engineer, and turned his attention to selling the Mall at any price. The building continued to leak.

The City did nothing in 2005 and throughout most of 2006. Its complaint-driven enforcement policy continued in its characteristic rigid and inactive mode.

2008: Much talk and deception, but no action to fix the leaks

Throughout 2008, Eastwood owner Bob Nazarian repeatedly promised the City and his tenants that the leaking roof of the Mall would be fixed. He went to great lengths to appear to be doing so. Unfortunately, the appearance was not the reality. He hired – or announced he had hired – a number of consultants and contractors, but as would be his pattern, he withdrew from contracts to which he had agreed, fired the people he had hired, or failed to move forward after receiving partial advice.

Bob Nazarian repeatedly promised the City and his tenants that the leaking roof of the Mall would be fixed. He went to great lengths to appear to be doing so. Unfortunately, the appearance was not the reality.

In 2008, Mr. Nazarian received two professional opinions saying that the roof could support a waterproofing membrane, although the two disagreed on the allowable weight of the system. Despite this advice, it was clear that he had no intention of paying for the necessary repairs. He called for tenders to install a membrane, named a winning bid, and ensured that the news spread quickly to tenants, only to quickly renege on the offer. He wanted only to give his tenants the illusion that he was moving forward with the necessary repairs. The illusion went so far as to make false promises in the local newspaper that the leaks would soon be fixed.

Mr. Nazarian also unsuccessfully attempted to obtain financing to fix the roof. He may not have been willing to spend his own money on the “black hole,” but he did seek to borrow at least some money, to give the impression that work was

being done. He attempted to borrow more from his own lender, RBC, but following an inspection that revealed structural issues resulting from the leaks, the bank threatened default instead. He also attempted to convince a local business development group, Elliot Lake and North Shore Corporation for Business Development (ELNOS), to advance funds. When it learned that this request was a deceptive scheme to start repairs of the roof, but with no plan to pay for them or even complete them, ELNOS turned him down. He tried again later with a bogus contract, to no avail. He even asked for a tax break from the City to fix the roof.

The summer of 2008 was a true debacle. Mr. Nazarian hired a company to do repair work on the roof, but the contract (still unsigned) did not even provide for an asphalt topping – an essential element of the waterproofing system. In addition, he refused to front the money for the waterproofing membrane. Despite these obvious problems, the company began work and tore out expansion joints, caulking, and concrete, only to see it rain every day that the crew was on the roof. The unfinished work done made the leaks even worse than before. Mr. Nazarian fired the company and patched the damage by himself, using the usual methods with the help of Eastwood’s maintenance staff.

In August 2008, Mr. Nazarian also had to deal with increasingly persistent demands from RBC to address the leaks. He chose deception. He first signed a contract with yet another company to repair the roof in order to convince RBC that work was being done, and then backed out of it. He then provided RBC with false documents – a fictitious contract between Eastwood and a false front called Empire Roofing and Restorations Inc. indicating that the roof was being fixed.

The Mall continued to leak as it always had. I am convinced that Mr. Nazarian had decided by this point that he would never put in place a permanent solution to fix the parking deck, even though he knew there were potential issues with the structural steel.

The City continued to do nothing to address the problem. In fact, it entered into negotiations with Eastwood to renew the Library’s lease at the Mall, despite years of complaints from staff. A new chief building official, Bruce Ewald, took over the job in July 2008. He learned of the outstanding Notice of Violation in September 2008 and did nothing. City inaction over this period remained rooted in the same rigid belief: the Library was important to the Mall, and the Mall in turn was important to Retirement Living and to the community at large.

2009: The City issues another order – with no results

The year 2009 was less eventful for Mr. Nazarian, but he nonetheless continued to mislead the City, the Royal Bank, and Mall tenants by saying that the leaks were being fixed. Scotiabank, one of the Mall's anchor tenants, was the only one to take a stand against Eastwood by withholding its rent. Mr. Nazarian's efforts to sell the Mall continued. During this period he manipulated the rent rolls to make the deteriorating financial situation at the Mall look more favourable. He also cleaned up the Mall before bank inspections to hide the water stains and other evidence of leaks. Sales brochures and information for potential tenants gave the impression that the roof was watertight.

In 2009, Mr. Nazarian pursued the possible purchase of land from the City near the Mall in which to build a separate parking lot. He told the City he needed the land to get parking off the roof so he could reduce or fix the leaks. This request was yet another warning to the City that the leaks at the Mall were causing serious trouble.

Everybody from City Council to Mr. Ewald knew that the roof leaked. Despite this knowledge, City Council usurped the Library board's power to negotiate and sign its own lease. It forced the Library to remain in the Mall, with no guarantees in the contract that the leaks would be fixed.

The Mall was inspected by professionals twice in 2009, yet both times the inspectors failed to grasp the seriousness of the situation. In May 2009, RBC retained Pinchin Environmental (Pinchin) to conduct a building condition assessment. An engineer and a certified engineering technologist carried out the inspection and wrote the report. Both men knew of the long history of leaks at the Mall, resulting in serious issues with the parking deck, but the company did not look at its own past reports before the inspection. Nor was it provided with past engineering and inspection reports from others, which would have shed light on the true extent of the leaks. Pinchin's inspection was a visual "walk-through" only, at a time when it had not recently rained. The inspectors did not speak to any tenants, and they examined only two visible areas of the Mall's columns and beams. Despite ample evidence of leaks and the clear need for repairs, RBC was told that the condition of the building was "satisfactory."

Robert Wood, an engineer with M.R. Wright & Associates in Sault Ste. Marie, made the second professional inspection, after the City of Elliot Lake issued another order to determine the condition of the Mall. Once again the opportunity to raise an alarm was lost.

The 2006 Notice of Violation sat dormant and unfulfilled for three years. Finally, Paul Officer, the City's fire chief, brought it to the attention of the chief building official and other City staff. Mr. Ewald did not take the outstanding violation seriously at first, but eventually in late September 2009 he inspected the Mall. Like Mr. Allard before him, he saw evidence of extensive water infiltration, abundant rust in numerous locations, and missing or waterlogged fireproofing on the steel beams.

The City issued an Order to Remedy to Eastwood on September 25, 2009. It required that the Mall be inspected and that all deficiencies, including those related to structural soundness and watertightness, be remedied by October 30, 2009. The order referred to the missing fireproofing and excessive rust on the steel beams in specific areas, such as in the vicinity of the lottery ticket booth, the scene of the eventual collapse, but specifically ordered that the "entire mall area" be inspected by a structural engineer and that all deficiencies noted be corrected in a manner to be prescribed by the engineer.

Eastwood hired Mr. Wood to do the inspection. Mr. Wood had been a practising engineer since 1974, but I found his inspection to be seriously deficient for the following reasons:

- Mr. Wood had done earlier work at the Mall and had been provided with the 1998 Halsall report. He did not read it before inspecting the Mall in 2009.

- Mr. Wood inappropriately limited his mandate to inspecting only the specific areas of leakage identified in the Order to Remedy, when the order he was provided with clearly required inspection of the entire Mall.
- Mr. Wood did not assess the adequacy of the Mall's waterproofing system despite the clear wording of the order.
- Mr. Wood was not provided with key information, such as the 2006 Notice of Violation, the extent of previous leaks, the RBC inspection reports, and past engineering reports in Mr. Nazarian's possession.
- Mr. Wood spent less than one day at the Mall. His only tools were a tape measure, a flashlight, and a notepad. His notes were sparse and summary.
- Mr. Wood did not look at past reports by his company about the Mall. If he had, he would have discovered a 2005 inspection of the Library stating that leaks had occurred for 16 years.
- Mr. Wood inspected the beam that eventually collapsed, photographed it, and noted rust, but did not look at the connections despite this area being one of the worst for leaks.
- Mr. Wood was overly dismissive of concerns brought to him by a Mall employee about vibrations and movements in the area of the eventual collapse. I heard expert evidence that failure of the weld and beam was likely not the explanation for the movement, but his response was indicative of his cavalier approach to the whole inspection.
- Mr. Wood's final report, produced on October 28, 2009, did not provide a plan to correct structural and waterproofing deficiencies as the Order to Remedy had requested.
- Mr. Wood's report concluded that he did not have structural concerns with the Mall and that he had not observed loss of section, despite not having taken any detailed measurements.
- Mr. Wood did not warn against the consequences should the leaks continue.

The City's reaction to the report was equally disappointing. Mr. Ewald accepted Mr. Wood's report despite these shortcomings. On a day of light rain in November 2009, Mr. Ewald visited the Mall for what he termed a "loose inspection," during which he claimed not to have noticed water coming into the building. On this basis, incredibly, he believed that the order to fix the leaks had been complied with despite the fact that nothing new had been done. In February 2010, the order was rescinded. The leaks would continue unabated until the collapse.

2010 to December 2011: Eastwood cannot sell the Mall and will not fix the roof; the City receives more warning signs

In 2010 and 2011, Eastwood actively tried to sell the Mall, but was never able to close a deal. Often, the deals fell through because of a lack of candour during disclosure.

One potential purchase was of particular interest because the buyer, McCowan and Associates, acquired the 2009 Wood report during due diligence and quickly concluded that the parking deck was in bad shape. Ron McCowan, the company's principal, called and spoke to Mr. Wood directly. The evidence appears to support the conclusion that Mr. Wood told Mr. McCowan that it was urgent and critical that the roof be repaired.

Mr. McCowan's company may indeed have carried out the necessary repairs to the roof if it had purchased the Mall. However, the deal fell through because he could not get the price reduction he was seeking.

In 2010 and 2011, Eastwood hired a new engineer, Philip Sarvinis. Mr. Sarvinis explored various possibilities for the Algo Centre, including the creation of new parking spaces at ground level in order to get cars off the roof, solar panels on the roof, and the installation of partial or full waterproofing membranes. Once again, though, Mr. Nazarian maintained his usual pattern of balking at the prospect of investing significant amounts of his

own money in the Mall. Mr. Sarvinis's involvement led nowhere, as did the solar panel idea, which would have included waterproofing of the roof.

By this time, the roof was in a critical condition. If Mr. Sarvinis or anyone else had carried out a proper structural condition assessment, Eastwood would likely have learned that much of the steel throughout the structure needed retrofitting and reinforcement, in addition to the application of a waterproofing membrane. As things transpired, however, Mr. Sarvinis and other professionals working on the Mall during the Eastwood years never developed an awareness of these fundamentally crucial structural issues.

Throughout 2010 and 2011, water continued its incessant infiltration of the rooftop parking deck. An RBC inspection in 2010 detailed the state of disrepair at the Mall and numerous active leaks. A follow-up report in 2011 described the roof leakage as a "pressing issue" but "improving." The opposite was true. The situation was getting worse.

City inaction continued. The 2009 Order to Remedy had been rescinded and never revisited, despite clear evidence that the Mall continued to leak. The Library continued to suffer heavy leaks. Mr. Nazarian continued to express a desire to the City to purchase nearby land and get parking off the roof – an admission from the owner that there was a structural problem. But armed with Mr. Wood's deficient 2009 report, Mr. Ewald claimed that he no longer had concerns about the underlying structure. His lack of action in the face of the ongoing leaks is deeply disturbing.

The City and Mr. Nazarian were warned of the possibility of structural damage by Keith Moyer, a citizen member of the City's Economic Development Advisory Committee, who clearly expressed what should have been obvious to so many: "Given the decades of water, mixed with road salt and other contaminants penetrating into the slab, one may have serious concerns as to the continued viability of the reinforcing steel."

In May 2011, an incident occurred that could have led to the closure of the Mall, had there been a proper response by the Mall owner and the City of Elliot Lake. The co-owner of Hungry Jack's arrived one morning to find that two pieces of concrete had broken off the hollow core slabs above the restaurant. Eastwood was advised but did nothing. The City of Elliot Lake was also notified. Mayor Hamilton knew, as did Councillor Al Collett. Mr. Collett told Mr. Ewald about the incident, but in keeping with his pattern of inaction, the chief building official did not investigate the incident, despite admitting in testimony that fallen concrete was a sign of a potential serious structural issue. Mr. Ewald in fact said to Councillor Collett: "[W]hat do you want me to do, Al, close down the mall?"

The incident should have set off alarm bells for the City of Elliot Lake. It did not.

2012: Two more inspections – and two more missed opportunities

In 2012, only months before the collapse, tenants continued to complain about the leaks and the state of disrepair of the Mall under Eastwood's management. The roof leaked whenever it rained or when snow accumulations melted. Stained ceiling tiles were commonplace, as were fallen or water-filled light fixtures, shorted circuits, and rusted wires. "Bladders" were placed in the ceiling to funnel water into a hose and down to buckets positioned below. One witness described an "extreme" amount of leaking around the lottery kiosk area. Tenants were leaving or wanted to leave. Shoppers Drug Mart vacated the Mall for a nearby building. Scotiabank, after months of withheld rent, finally left the Mall. Zellers was fed up and issued a notice of default.

**"Given the decades of water, mixed with road salt and other contaminants penetrating into the slab, one may have serious concerns as to the continued viability of the reinforcing steel."
– Keith Moyer**

The City knew that the building continued to leak. The chief librarian, desperate about the conditions in the Mall, urged the City to consider moving the Library out to a stand-alone facility. Mr. Ewald was expressly told by Mr. Wood that ongoing repairs to the roof were only a temporary fix, yet he did nothing to force a permanent solution.

Before the collapse, Eastwood was on the verge of refinancing its mortgage through a Business Development Bank of Canada loan. The loan would have included some money to repair the roof, but far from enough to do it properly.

It was against this background that two final inspections of the Mall took place, one by the Ministry of Labour, the second by Mr. Wood. Both were disappointing in their scope and their failure to uncover the Mall's true state of deterioration.

In December 2011, the Ministry of Labour received an anonymous email complaint about mould, roof leaks, and an unsafe escalator at the Algo Mall. On January 11, 2012, in the midst of winter, the ministry's Ed Hudson conducted a very brief inspection. He visited the Mall at least 25 times between 2007 and May 2012 for inspections not related to roof leaks, and he insisted in his testimony that during all those visits he did not notice any signs of leaks. I cannot be other than skeptical about this assertion. Without doubt, the inspection he conducted on January 11, 2012, was perfunctory, incurious, and inadequate:

- Mr. Hudson's inspection was very brief. He went to the food court, where he purchased a lottery ticket under the area that later collapsed. He did not notice leaks, puddles, buckets, or tarps (it was after all mid-winter), but he did not enter any of the businesses or speak to any of the tenants, employees, or health and safety representatives at the Mall.
- Mr. Hudson went instead to the office of the Mall management after this cursory review. He learned there were leaks, but was satisfied to hear that a maintenance program was in place. He did not ask how long the leaks had been occurring.
- Mr. Hudson returned to the Mall in April and May 2012 on other business, but again made no inquiries and said he saw no leaks.

No order was issued as a result of the January 2012 inspection.

The Ministry of Labour received another email complaint about leaks at the Mall from an employee at Zellers, only two-and-a-half weeks before the collapse. The complaint described leaks so bad that the lights "kicked off" and buckets were placed all over the floors and shelves to catch dripping water. Instead of immediately acting on the complaint, the ministry employee who responded to the email simply provided a phone number for the individual to call. When the individual complained once more after the collapse, he was again simply redirected to a phone number. This response was entirely inappropriate for a clear complaint that required action.

On April 12, 2012, Mr. Wood conducted his second inspection of the Mall. The Business Development Bank of Canada needed a building condition survey and report as part of its due diligence process before lending money to Eastwood. Once again, he failed to uncover the true state of the building.

The evidence revealed the following:

- Mr. Wood conducted the inspection while his licence was under suspension. He was able to continue to work, but only on condition that his reports were reviewed and signed by a professional engineer.
- Mr. Wood took Eastwood on as a client despite having been asked by his firm not to accept new clients.

- His inspection on April 12, 2012, was carried out between 9:00 a.m. and 2:30 p.m. It was visual only and focused mostly on the electrical and mechanical systems. His notes for the structural inspection were one-and-a-half pages long and contained few details.
- Mr. Wood inspected the areas he had reviewed in 2009 as well as other areas, including the spot where Zellers was located. He noted water capture systems, rusted exterior walkways, missing ceiling tiles, and leaks, but he said he saw “no visual distress in any areas that could be visually inspected and shown by maintenance.” He provided no indication in his report of the areas he had inspected to reach this conclusion.
- He saw rusted steel beams but took no measurements. On the basis of a visual assessment of corrosion only, he concluded there had been no loss of section.
- He made no attempts to uncover hidden areas, saying he was not authorized to do so. He did not inspect connections.
- He did not recommend a more comprehensive inspection.
- Mr. Wood did not express any sense of urgency about the need to fix the roof permanently. He provided no detail on the areas he had inspected in order to conclude that “the observed rusting at this time has not detrimentally changed the load carrying capacities of the structure.” He said he observed no visual signs of structural distress.

I am forced to the conclusion that Mr. Wood did not conduct this inspection objectively or with a view to determining the true condition of the Mall. I believe he did so with the preconceived notion that the Mall was structurally sound.

Mr. Wood then sought to have his report reviewed and signed by Gregory Saunders, his partner and a professional engineer. After a meeting that lasted approximately 45 minutes, Mr. Saunders signed Mr. Wood’s report. In his testimony, Mr. Saunders stated that he was not told about the 2009 Order to Remedy and Mr. Wood’s previous report, nor was he informed of the history of leaks at the Mall. If he had known about them, he said, they would have raised red flags in his mind.

Mr. Saunders had never been to the Mall himself, and he made no efforts to look at other reports his firm had prepared relating to the Mall. Given Mr. Wood’s status as a suspended engineer, Mr. Saunders should have approached the review with a more critical eye and been less willing to rely solely on the information Mr. Wood was providing to him.

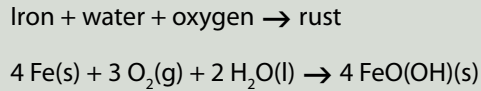
Following his meeting, Mr. Wood made changes to the report at Mr. Nazarian’s request, without advising Mr. Saunders. The changes had the effect of making the report more favourable to Eastwood’s interests. Mr. Wood removed a photo of the leakage collection system above Zellers as well as references to the leaks being “ongoing” and “of particular concern” in the Zellers area. These changes constituted misleading and unprofessional behaviour by Mr. Wood.

Mr. Wood’s final report was delivered to the client on May 3, 2012. The Mall collapsed on June 23, 2012.

I am forced to the conclusion that Mr. Wood did not conduct this inspection objectively or with a view to determining the true condition of the Mall. I believe he did so with the preconceived notion that the Mall was structurally sound.

General conclusions

Steel rusts



Basic science teaches that, given sufficient time, a combination of oxygen, water, and any iron mass will eventually convert to rust and disintegrate. If salt is present, the iron tends to rust more quickly. This process has been known and understood for millennia – at least in general terms. Yet in Elliot Lake it seems, incredibly, to have escaped the attention of all those who should have cared. The few isolated voices of those who did protest were ignored or, worse, silenced.

The evidence summarized in this Report provides ample targets: a poor initial concept, mediocre design, untested technology, faulty implementation, improper maintenance, timid and unheeded advice, apathetic oversight, outright greed, professional ineptitude, and carelessness.

The evidence is incontrovertible that the collapse of a section of the roof of the Algo Mall was caused by the severe rusting of the connection between one particular column and one beam. As a result, the connection failed suddenly and catastrophically. The more difficult question is why the Mall was allowed to deteriorate to this extent, and what recommendations I should make to attempt to ensure that this toxic combination of circumstances does not happen again.

I have crafted recommendations based on certain factual conclusions, which I briefly summarize here.

The Algo Mall's design was ill conceived

The basic concept was faulty

Climatic conditions in Elliot Lake are difficult and variable. They range between the extremes: high heat in summer and brutal cold in winter, accompanied by all forms of precipitation depending on the season – rain, snow, ice, and slush. As a result, the 334-space rooftop parking lot at the Algo Mall was regularly exposed to sand and road salt as well as heavy vehicles with scraping metal blades. The thermal extremes of weather affected the materials that made up the roof by causing significant cyclical expansion and contraction – the freeze–thaw cycle.

Algocen was warned about the dangers, but failed to heed the warnings. The very concept of rooftop parking may have been unusual, but ensuring impermeability did not present insuperable problems beyond contemporary engineering know-how. It could be done, but not easily or cheaply.

The roles of the architect, the engineer, and the owner were confused and unorthodox

No independent professional was specifically designated as the prime consultant (a term that is not defined in legislation) during construction of the Mall. In addition, no independent professional reviewed the adequacy of the waterproofing system, yet both the engineer and the architect signed and sealed a letter of substantial completion. Mr. Keywan, the architect, had never once gone to the site, nor had anyone on his behalf.

The building, excluding the waterproofing system, met the then-current requirements of the *Building Code*, but the roof design was defective

The steel structure of the Mall building was constructed according to the architectural and engineering plans and specifications. The original welds met, and even exceeded, the *Building Code* requirements. Assembly deficiencies noted during construction were remedied and played no role in the collapse. The hollow core slabs proved robust and time tested.

The waterproofing system used, however, was an untested variant of systems used elsewhere. It was never used again on any other project.

Theoretically and conceptually at least, the roofing system, by being designed both to shed and to drain water, met the *Building Code* requirements. However, one glaring and simple reality stands out: the system was a dismal failure from the moment it was installed. The expansion joints were poorly conceived for a deck meant to accommodate traffic in all weather conditions. Drainage and sloping were problematic. Even more important, HSP's experience with cracking in the concrete topping, anticipated and controlled in the Double Tee system, did not extend to the hollow core slabs.

Construction delays caused much of the concrete, grouting, and sealing work, as well as installation of the expansion joints, to occur very late in the fall or winter of 1979. This timing into the cold season may have compromised the performance of those materials.

The parking deck leaked from the outset and throughout the entire life of the Mall. HSP's post-construction efforts to remedy the situation were futile. Water penetrated the concrete topping through cracks, both intended and unintended. Some bonding between the topping and the slabs failed, allowing water to migrate laterally across the slab surfaces and along steel beams. Sealants failed, sealing methods were questionable, expansion joints allowed water penetration, and drainage was deficient. Heavy traffic and snow-removal equipment, along with the methods used to remove the snow, may have exacerbated the problems. For 33 years, water laden with chlorides percolated down to the steel beams and their connections.

Bad choices made by the original owners, motivated by cost-cutting considerations, led largely to this chronic and dangerous situation.

After construction: the role of the engineering and architectural professions during the existence of the Algo Mall

The Mall never lacked from professional architectural and engineering oversight. During the 33 years of its existence it was visited, examined, evaluated, and reported on by engineers and architects on some 30 occasions. Yet the important and central recommendations relating to the parking deck's structural integrity and impermeability were never implemented.

The engineering and architectural professions, to varying degrees, may bear some responsibility for the Mall's eventual demise. In fairness, many inspections and the reports that followed them were constrained by the narrowness of their mandate. Some were sophisticated and relatively thorough. Others, however, were cursory and seriously deficient in terms of quality and content.

In my view, a number of important and relevant general observations are warranted:

- No serious and comprehensive survey of the steel substructure of the Algo Mall's parking deck, although occasionally recommended, was ever commissioned and undertaken.
- None of the professionals appeared to have anticipated the severity of the corrosion caused by years of leakage of water-entrained chlorides on the steel below. Little specific attention was directed to connections between the beams and the columns.
- Despite the obvious reality that the "patch-and-seal" method of waterproofing was ineffective, some professionals recommended its continuation.
- Some professionals were reluctant to review previous reports, out of a misplaced concern about importing the biases of previous inspections.
- One report in particular (Mr. Wood's 2012 report to Eastwood) was amended to make the report more palatable, without the supervising engineer's knowledge and consent.
- Many inspections were strictly visual, and superficially so, with no attempt at qualitative testing or even minimal removal or displacement of obstructing material.
- The language of one report was phrased in such a way that an unsatisfactory remedial procedure was described as an "option" – suggesting that it might be viable when in fact it was not.
- Another report was not explicit in making clear that the recommended remedial procedure would require professional supervision and implementation by experienced and qualified contractors.
- Inspections were occasionally conducted without interviewing affected occupants of the Mall and determining the history of leakage. A "snapshot" approach was used often when optimal climatic conditions prevailed, without consideration of the deck's behaviour over periods when conditions were less favourable.
- Engineers were confused about the carrying capacity of the deck, but they made only half-hearted efforts to discover its actual capacity rather than consulting carefully with other professionals, researching the literature, or performing on-site examinations and analysis. This ongoing confusion led to indecision and dithering on the part of the three successive owners of the Mall and provided some of them with excuses for inaction.
- Some engineers were not careful in describing precisely the limits of their experience, expertise, and qualifications.
- Some opinions about the structural condition of the Mall were expressed without the involvement of a structural engineer.

Mr. Wood's reports require specific mention. In my view, they stand out in sharp contrast to the reports that followed other professional inspections. Those reports may have had flaws, to greater or lesser degrees, but the quality of Mr. Wood's reports, along with his conduct, was markedly inferior. His work provided unfounded assurances that gave the Mall owner a documented excuse to continue doing nothing. His reviews were similar to those of a mechanic who, while inspecting a car with a cracked engine block, pronounces the vehicle sound because of its good paint job.

For his 2009 report, Mr. Wood unjustifiably narrowed his mandate, averred ignorance of long-standing leakage, ignored previous documentary material, did not compare the "as-built" condition with the original plans, conducted the most rudimentary and superficial of inspections, and produced skimpy notes. He asked no one how long the leaks had been occurring, and he did not investigate further when he observed rust on the steel beams. He made little or no inspection of connections, attempted no measurements, and made no mention

of areas he had not inspected because they were covered by fireproofing that obstructed his casual viewing of them. His follow-up 2012 inspection was qualitatively similar. He did not recommend a more comprehensive inspection, nor did he imbue his recommendations with any sense of urgency.

His clients, past or present, were not notified of his licence suspension by the Professional Engineers of Ontario.

Mr. Wood's changes to the report at the request of Mr. Nazarian, the Mall owner, after Mr. Saunders had signed and sealed it, were especially troubling. They were made, moreover, entirely without Mr. Saunders's knowledge or consent.

After construction: the role of the owners

The evidence is unequivocal that all three owners of the Mall had the means to fix the roof's problems – and in the proper way. Not one of them did – and the motive behind their inaction was clearly financial. Rather than seriously come to grips with the leaking of the parking deck, they resorted to patchwork and cosmetic solutions. They sold or attempted to sell their problem.

Algocen: 1979–99

The first owner, Algocen, knew that the Mall needed a new waterproofing system, and it received professional advice that such a system could be applied. It ignored that advice and used confusion about the load capacity as an excuse not to act. It could have afforded to fix the roof, but it did not. Algocen was part of a large, successful commercial enterprise with ample resources.

Algocen decided instead to attempt its own remediation by having its employees use defective methods that had always proved ineffective. Recommendations to inspect the substructure to assess the true effects of degradation went unheeded.

When the time came to sell the Mall to Elliot Lake Retirement Living, Algocen played its cards very close to its corporate vest. Information relating to the history of leakage and its potential negative effects on the Mall's structure was not divulged. The Mall was sold on an "as-is" basis.

Elliot Lake Retirement Living: 1999–2005

My concerns with Retirement Living's ownership relate to issues involving conflict of interest for the City representatives on its board, Retirement Living's lack of transparency and openness, and its refusal to fix the roof properly.

Few would disagree that Retirement Living was remarkably successful in achieving its goal of turning the City's economic prospects around. In that context, the justification for its acquisition of the Algo Mall was right and proper. Despite that fact, and its commonality of interest with the City, Retirement Living is an entirely separate entity, independent of the City's direction, and a not-for-profit private corporation. The City officials who acted as appointees to the Retirement Living Board of Directors were put in a potential position of conflict of interest, one where the best interests of the corporation differ from the best interests of the municipality. This conflict was evident during the time that Retirement Living sought to purchase, and later owned, the Mall. For example, there was a clear contravention of the City's by-laws by virtue of the perpetual leaking of the parking deck.

I also have serious concerns about Retirement Living's lack of openness and transparency. All of Retirement Living's assets came from public funds in one form or another. In my opinion, its corporate structure and insistence on confidentiality operated to disenfranchise the citizens of Elliot Lake. There certainly appear to have been sound

and justifiable reasons for creating a separate entity to manage the City's inventory of housing. Without doubt, Retirement Living has been well administered, just as it has also been successful financially and in achieving its objectives. The reality, however, is that it has become a parallel quasi-civic administration, managing public assets and pursuing municipal goals without public scrutiny.

Finally, I am concerned about the fact that Retirement Living knew that the roof needed to be fixed properly and failed to do so, despite having the financial means. Meaningful repair measures were put off to the distant future. Mr. Kennealy's noted comments to the Library board in 2005 said it best: "[W]ill do: repair – some work – will not do large outlays of cash." Its failure to act was a tragically missed opportunity. It also failed to pass on information about the true extent of the leaks to the new owner, Eastwood Mall. Admittedly, Retirement Living was not contractually obligated to do so, but in the process (and by virtue of Eastwood's lack of vigilance), the public interest was ignored.

Eastwood Mall Inc. and Bob Nazarian: from 2005 to the Mall collapse

Eastwood was Mr. Nazarian's alter ego. Whatever may be said about Eastwood's shortcomings as the owner of the Mall can also be said about Mr. Nazarian, Eastwood's controlling mind. Eastwood was the third and last owner of the Mall – its last chance for structural salvation before meeting an otherwise inevitable fate. Mr. Nazarian utterly failed in his role as the Algo Mall's overseer and, in the process, put in jeopardy the lives and safety of his employees, tenants, and customers.

Mr. Nazarian may have been misled about the true state of the leaks at the Mall when he purchased it from Retirement Living, but during Eastwood's ownership, he actively misled the City, its citizens, his tenants, employees, lending institutions, potential buyers, contractors, and engineers.

Mr. Nazarian may have been misled about the true state of the leaks at the Mall when he purchased it from Retirement Living, but during Eastwood's ownership, he actively misled the City, its citizens, his tenants, employees, lending institutions, potential buyers, contractors, and engineers. He realized early on that the Mall had become, to use his own words, a "black hole." He had the financial means to fix the problem but chose not to, despite his awareness of the potential for structural damage. The great majority of his decisions were motivated by concern for his own financial interests at the expense of the needs of others. He often attempted to rid himself of the Mall by selling it, but was defeated by his unbridled desire to squeeze every possible extra dollar out of the transaction.

It is regrettable that Mr. Nazarian was able to lull a timorous and credulous civic administration into a false sense of confidence about his intentions. He successfully exploited the City's inertia and gullibility.

After construction: the role of the City of Elliot Lake

The leaking of the parking deck was widely known and understood within Elliot Lake's civic administration, although many City witnesses attempted to downplay or deny that knowledge while giving testimony. Many pleaded ignorance or evinced convenient amnesia about the particulars of the City's Property Standards By-law and the powers vested in the City to enforce its provisions.

The parking deck of the Algo Mall leaked continuously for 26 years before any action was taken by the City. Only in 2006 did it serve the owner a Notice of Violation – and then promptly forgot about it!

Three years later, after the Building Department recognized its failure to act, it issued an Order to Remedy, which resulted in an engineer's inspection report that was clearly incomplete and defective on its face. After receipt of that unsatisfactory report, the City's chief building official carried out a cursory inspection of the Mall himself and promptly rescinded the order.

Elliot Lake's city hall is not a large, multi-level structure. All the offices of municipal officials are close to each other. Regardless, one is left with the impression that the building consisted of hermetic isolated offices whose occupants either did not share information or were prevented from doing so by virtue of their isolation. One particular chief building official appeared to be so jealous of his independence that he rejected the notion that conversation or suggestions were permissible. He even thought that they constituted an affront to his civic rights.

Throughout the Mall's existence, the appearance of work being done to remedy the leaks was good enough for the City. The fact that the same ineffective work was being performed over its entire lifetime, without appreciable results, was apparently lost on those charged with enforcement. The evidence has clearly shown that municipal officials knew about the potential for structural damage resulting from the continuous ingress of water and chlorides.

The absence of corporate memory in Elliot Lake was attributable, at least in part, to a poor archiving and retrieval system of data relating to building and maintenance issues. Information was lost when one official retired or died. The City lacked an effective platform for its data – one that was accessible, traceable, and updatable. It had no effective system-wide method to bring tasks forward and to monitor deadlines.

I was not particularly concerned by the City's official adoption of a complaint-driven enforcement process. What struck me, however, was that, in the minds of some, the policy precluded any form of independent initiative by the responsible office holder, even in the face of blatant evidence of an ongoing problem.

It seems, however, that one fact stood out and outweighed all others: the Mall was vital to the economic and social health of the community. Partial or complete closure of the Mall was anathema – an attitude that percolated from the mayors down to all employees. This attitude was both spoken and unspoken, and it was certainly well understood. It coloured the City's relationship with the Mall's successive owners and even led to toleration of the last owner's egregious behaviour.

This predilection animated the City in its disregard of the persistent complaints of one of its most important institutions, the long-suffering Library. Even falling concrete in the food court was overlooked. It may well have explained what some have described as a wilful blindness about the by-law enforcement process. One can understand that tenants, members of the public, or even the Library board may have been unclear about that process – but not those officials for whom enforcement was central to their role.

Warnings and direct complaints, especially during the last decade of the Mall's existence, were varied and numerous. The narrative of the evidence is replete with references to specific instances. They invariably and sadly fell on deaf ears.

Warnings and direct complaints, especially during the last decade of the Mall's existence, were varied and numerous. The narrative of the evidence is replete with references to specific instances. They invariably and sadly fell on deaf ears.

The Ministry of Labour

The interest of the Ministry of Labour in the Mall's structural and leakage problems was in no way infused with ardour and consuming concern. During the Algocen years, the ministry had a field office in the Mall. It is, to say the least, surprising that the chronic leakage should have gone unobserved and undocumented. I have already described the attitude of one of the inspectors, Ed Hudson, as being incurious and his actions as perfunctory and inadequate.

I find it odd that, during the entire period of the Mall's existence, the leaking roof was the subject of relatively few complaints and reactive visits, particularly so when the leaking became much more prevalent. Yet in the Mall's later years, the leaking roof and its effects were the subject of only two complaints and one visit. The first complaint was anonymous, and the ministry's response was tepid. The second complaint was met with what can only be described as an indefensible bureaucratic runaround by the ministry official who received the complaint.

There were, over the years, numerous occasions when the health and safety committees of individual businesses met to deal with leakage problems. Their concerns rarely made it to the attention of the Ministry of Labour. It may very well be that the ministry's internal responsibility system acts as a disincentive to the reporting of problematic conditions. Employers may not be motivated to invite scrutiny for fear of the potential financial consequences, and employees may be apprehensive about the security of their employment.

Summary

The deterioration of the infrastructure of the Mall parking deck did not happen overnight. It was the result of a poorly conceived and poorly engineered surface, decades of neglect, lack of competent and thorough inspection, inadequate official oversight, and owners who put profit-seeking above all else. All those who were in a position of responsibility or authority over the Mall contributed in varying degrees to its demise.

Addendum

The anonymous letter

On May 8, 2014, more than nine months after hearing closing submissions, the Commission received an anonymous letter along with a 1988 report, in both English and French, entitled *Deterioration of parking structures*. The report had not been produced to the Inquiry during its investigation.

As a result, I issued a Procedural Order seeking confirmation of its authenticity and information about government actions in response. The Government of Ontario, along with four participants, provided responding submissions.

The report

The Advisory Committee on the Deterioration, Repair and Maintenance of Parking Garages was formed in November 1986 by the former Ministry of Housing. Leading Ontario specialists were asked to address the deterioration of the existing provincial stock of approximately 3,000 parking structures – chloride-induced damage estimated to be worth about \$1 billion at that time. The goal was to provide a comprehensive repair and restoration program by 1992 which was “affordable, effective and enforceable.” The published report was divided into three chapters.

Chapter 1 discussed factors affecting corrosion rates and the importance of inspection techniques. Chapter 2 set out repair methods and criteria to evaluate solutions. Cost, physical compatibility, and durability or performance were important economic considerations, it said. Consulting engineers should diagnose problems and select repair methods, and qualified contractors should be employed to carry them out. Continuing education programs should be provided to owners, consultants, and contractors. Chapter 3 discussed systematic maintenance and monitoring procedures. Anticipated problems and investigatory techniques were identified.

In its submission, the government confirmed the authenticity of the report. It then outlined the steps it had taken following publication of the report to amend regulations for the design and construction of *new buildings*, the way it had disseminated the amendments, and how it had participated in research studies and projects. However, it had only considered whether to establish requirements for the inspection and maintenance of *existing structures*. It stated that an impact study involving wide consultation seemed also to have been undertaken, and a policy paper had even progressed into its draft stages. However, copies of these documents and other related documents could not be found and might have been destroyed.

Subsequently, the government participated in studies conducted by both the Canada Mortgage and Housing Corporation and the National Research Council (NRC). A final NRC report, which was widely distributed, provided information to assist engineers and owners in formulating a repair strategy and effective maintenance practices for existing garages that had been built without adequate corrosion protection.

For policy reasons the government could not now find, Ontario did not adopt a legislated comprehensive repair and rehabilitation program for existing parking structures, nor was the *Building Code Act* amended to cover existing buildings. The government in its submission speculated about the reasons underlying these decisions. It also described existing municipal and provincial government legislative powers relating to parking structures as well as discretionary municipal authority.

The unpublished chapters

The Ontario government also made supplemental submissions to the Commission when it discovered additional documents – three draft chapters that had been omitted from the published *Deterioration of parking structures* report.

Chapter 4, Overview, discussed the difficulty of introducing workable legislation for all affected parties, given the financial impact any regulations would have on owners of existing parking structures. Specifically identified issues were as follows:

- a communications plan
- the need for research
- maintenance programs
- a work plan for 1988–92
- collecting documents on state-of-the-art repair methods
- survey and development of a maintenance program
- analysis of legislation of other jurisdictions
- reserve funds

A summary of the two other unpublished chapters was included in the supplemental submissions, along with a discussion of the tax implications on different classes of ownership. Chapter 5 dealt with enforcement procedures. The establishment of provincial mandatory minimum standards was one of the options considered as well as enforcement through municipal by-laws on property standards. According to the plan, a committee would be set up to monitor the impact of enforcement and to analyze solutions that had been legislated elsewhere in Canada and the United States. Chapter 6 considered a coordinated communications strategy that involved all the stakeholders.

The government's reply submissions

The government speculated that it was reasonable to infer that a policy decision had been made not to develop laws, policies, and procedures for existing parking structures, probably for reasons involving affordability, effectiveness, and enforceability. It pointed out, however, that, given the by-laws already in place, enactment of additional legislative requirements would not have prevented the collapse of the Algo Mall. The efficacy of the system depended on implementation, not legislation, and local municipalities were best placed to understand and respond to such matters.

It could also be inferred, the government continued, that, when the Mall was built, the problems of deterioration and potential solutions were well understood by owners, engineers, and municipal officials.

Conclusion

I am grateful to the person who provided this report anonymously to the Inquiry. I question why the report was never mentioned during our hearings, given that many participants in the Inquiry had been involved in its preparation almost three decades before. Obviously, deterioration of parking structures by chloride damage was an alarming problem as far back as 1988. The report discussed issues that go to the very heart of the Algo Mall's existence and tragic demise.

Early knowledge of the content of this report would have affected the Commission's approach to its mandate. It is not sufficient to resort to conjecture and to infer that there must have been sound policy reasons for the failure to implement one of the options so seriously and carefully advanced by the Advisory Committee. Perhaps there were, but this Commission will never know and derive benefit from them. If those reasons did in fact exist, they should have been made known to me. If they were valid, they would have been of considerable value to me as I attempted to craft sound and effective recommendations. And so, the big question remains: Would those same policy reasons still be valid today, particularly in light of the events of June 2012?

A brief summary of my Part One recommendations

In Volume One of the Report, I explained the cumulative failings and failures that occurred during the 33-year existence of the Algo Mall and that led to its catastrophic demise on June 23, 2012, along with the consequent loss of two lives. I then offered recommendations on how best to improve current laws, regulations, policies, practices, processes, and procedures that exist to protect the citizens of this province and promote their well-being when they frequent or work in buildings that are generally similar to the Algo Mall in Elliot Lake.

Ontarians can be justifiably proud of their existing system of rules and regulations meant to ensure public safety in the construction of buildings. Any observer of current events is familiar with the frequent news of tragedies around the world in locations where mediocre public controls, poverty, and greed have fostered conditions in which dangerous public and private structures are allowed to exist. No system is perfect, however. We learn from past mistakes, and with earnest purpose and determination we must build incrementally on the shoulders and the experience of others.

I make a number of recommendations which can, in the main, be summarized as follows:

- There should be a mandatory province-wide requirement that buildings covered by my recommendations be maintained to a minimum standard to ensure public safety.
- All such buildings should be inspected by properly qualified structural engineers. These inspections should occur when a building is sold and, at a minimum, at a frequency that is commensurate with the risk of harm from a failure to meet the standard.
- Information about whether these buildings meet these minimum public safety standards should be available in an easily accessible and understood form to owners, the public, and prospective purchasers.
- The standards should be enforceable by a simple and practical process which requires that the responsible public authorities are accountable for the decisions they make and the actions they take.
- Those charged with determining whether buildings meet these standards, as well as with enforcing them – including professional engineers and municipal building officials – should be appropriately trained and certified. In addition, owners and the public should have easy access to relevant information about their training, certification, and any discipline against them.
- Ministry of Labour employees conducting inspections in response to complaints of unsafe working conditions under the *Occupational Health and Safety Act, 1997*, should receive adequate training and direction to ensure proper inspections. There should, moreover, be better communication among the Ministry of Labour, municipal building officials, and employers about issues relating to the minimum public safety standards.

The following recommendations are meant to apply to buildings that are generally similar to the Algo Mall in Elliot Lake – large mercantile buildings. As I explain in the main body of the Report, I hope the government will seriously consider applying my recommendations to all publicly accessible buildings and workplaces in the province. My rationale and suggestions for implementation also appear in the body of the Report.

Minimum structural maintenance standards for buildings

Recommendation 1.1

There should be province-wide minimum structural maintenance standards for all buildings in Ontario.

Recommendation 1.2

The regulation outlined in Recommendation 1.1 should include a requirement that all buildings be watertight, structurally sound, and not unsafe, and be maintained in such a way as to keep them in that condition for a reasonable period (the “Minimum Structural Maintenance Standard”).



Inspections of buildings to ensure compliance with the Minimum Structural Maintenance Standard

Recommendation 1.3

All owners of buildings should be required to ensure that their buildings are inspected periodically (a “prescribed structural inspection”) by a professional engineer to determine whether they comply with the Minimum Structural Maintenance Standard and what steps, if any, need to be taken to bring them into compliance.

Recommendation 1.4

For buildings to which these Recommendations apply, the Professional Engineers of Ontario should enunciate a Performance Standard for the prescribed structural inspection.

Recommendation 1.5

The prescribed structural inspection should be conducted in accordance with the Performance Standard by a structural engineering specialist who has met the Professional Engineers of Ontario qualifications and requirements to be so certified.



Reports of inspections to ensure compliance with the Minimum Structural Maintenance Standard

Recommendation 1.6

After conducting a structural inspection in accordance with the Professional Engineers of Ontario Performance Standard, the structural engineering specialist should complete a Structural Adequacy Report to determine whether the building meets the Minimum Structural Maintenance Standard and, if it does not, to describe what repairs and maintenance are required in order for the building to meet that standard.

Recommendation 1.7

The Structural Adequacy Report should be provided to the owner of the building and simultaneously filed on a publicly accessible registry called the Structural Condition Registry.

Recommendation 1.8

If the structural engineer concludes that the condition of the building does not meet the Minimum Structural Maintenance Standard, he or she should be required to provide a copy of the Structural Adequacy Report, which must set out the repairs or maintenance required to rectify the situation, to the municipality’s chief building official.



Enforcing the Minimum Structural Maintenance Standard

Recommendation 1.9

The chief building official of each municipality should have the authority to issue an order requiring repairs to a building that does not meet the Minimum Structural Maintenance Standard.

Recommendation 1.10

After receiving a Structural Adequacy Report that describes breaches of the Minimum Structural Maintenance Standard, the chief building official should be required, as soon as practicable but no later than 10 business days after receipt, to determine whether to

- (a) issue an order requiring repair of the building so as to remedy the unsafe condition and the period within which the repairs must be conducted;
- (b) order that the building be closed; or
- (c) make no order.

Recommendation 1.11

If the chief building official decides to issue an order requiring repair of a building, in the situation described in Recommendation 1.10, that order, together with written reasons therefor, should be served on the owner of the building and filed on the Structural Condition Registry. If the official decides not to issue an order requiring repair of the building, he or she must issue a written document explaining why no such order is required, and that document should be served on the owner and filed on the Structural Condition Registry.

Recommendation 1.12

If the chief building official issues an order requiring repair of the building to bring it into compliance with the Minimum Structural Maintenance Standard, that order should provide a date by which the repair must be completed. If the repair is not completed within that period, the chief building official should have the authority, and should have to decide, whether to

- (a) prohibit the use or occupancy of the building;
- (b) cause the building to be renovated or repaired or demolished to bring it into compliance with the Minimum Structural Maintenance Standard or take such other action as he or she considers necessary for the protection of the public; or
- (c) take no further action.

Municipalities should be required to create and maintain a system which ensures that necessary information about these orders is recorded, maintained, and brought forward at the appropriate time to the relevant officers to ensure that time-sensitive operations are properly performed.

Recommendation 1.13

The decision of the chief building official under Recommendation 1.12 should be in writing, served on the owner, and filed on the Structural Condition Registry.

Recommendation 1.14

Where the municipality undertakes work under an order as outlined in Recommendation 1.12, the municipality should have a lien on the land for the amount spent on the renovation or repair.



Frequency of inspection to determine compliance with the Minimum Structural Maintenance Standard

Recommendation 1.15

A prescribed structural inspection should be required, and the resulting Structural Adequacy Report registered on the Structural Condition Registry, at the following times:

- (a) when a building is sold;
- (b) when the chief building official of the municipality in which the building is located requires it by an order in writing;
- (c) when repairs required by an order of the chief building official to bring it into compliance with the Minimum Structural Maintenance Standard are completed; and
- (d) in any event no later than at a period of time after the last prescribed structural inspection (a time to be established after a report from the advisory panel (see Recommendation 1.16).

If a prescribed structural inspection is not carried out and registered on the Structural Condition Registry within an appropriate time, the chief building official of the municipality in which the building is located should be required to have the inspection carried out, and the cost of the inspection should be added to the property tax bill of the building owner.

Recommendation 1.16

An advisory panel should be established as soon as possible to determine the appropriate classes of buildings, grouped by risk and the consequences of failure, and to make recommendations no later than 12 months from the release of this Report, on the following:

- (a) which classes of buildings should be given priority for the initial periodic inspection;
- (b) the time within which each class of buildings should have had an initial periodic inspection; and
- (c) the appropriate period within which each class of building should be inspected on a periodic basis.



Standards for building officials in Ontario municipalities

Recommendation 1.17

The existing standards for training and certification of building officials and inspectors under the *Building Code Act* should be amended to require mandatory continuing education.

Recommendation 1.18

The *Building Code Act* should be amended to provide that building officials and inspectors are public office holders who are independent of the municipal council, but that it is entirely appropriate for the council or the chief administrative officer of the municipality to direct a concern to the attention of the building official to be dealt with as he or she sees fit.



The sharing of reports concerning structural capacity, watertightness, and public safety of buildings

Recommendation 1.19

Owners of a building should be required to keep copies, located electronically or physically in a place other than that of the building itself, of all reports that have been prepared by a professional (professional engineer or architect) about the structural capacity, watertightness, or safety of the building or about any repairs, maintenance, or other remedial action required or performed that relate to the structural capacity, watertightness, or safety of the building (required reports) and provide them to

- (a) any purchaser or other person acquiring an ownership interest in the building, at or before the time of the transfer of title (contracting out of this obligation should not be permitted);
- (b) any person, on request, conducting any inspection, assessment, repair, or renovation of the building pursuant to statutory authority or with the permission of the owner; and
- (c) the municipality at the time of application for a building permit in respect of a portion of the building to which the required reports relate.

Recommendation 1.20

Any person transferring an ownership interest in a building to which the public or employees have access should be required to provide to the purchaser an affidavit in which an authorized person deposes that:

- (a) the owner has disclosed all required professional reports that have been prepared and provided while the building has been owned by the present owner and that were provided to the owner at or before the time title was taken;
- (b) the owner has made best efforts to obtain all such reports in respect of the property; and
- (c) the owner is not aware of any professional reports with respect to the building that relate to structural condition, watertightness, or public safety that have not been disclosed to the purchaser.

Recommendation 1.21

Professional engineers and architects should be required, on request, to make available any records in their possession or control related to the structural integrity of a building to

- (a) any professional engineer or architect conducting an inspection or assessment on behalf of the owner or with the owner's permission;
- (b) a prospective purchaser of the building or a professional engineer or architect conducting an inspection or assessment of the building on the prospective purchaser's behalf;
- (c) a chief building official or an inspector under the *Building Code Act*; and
- (d) an inspector under the *Occupational Health and Safety Act* in respect of a building that is a place of work to which the Act applies.



Municipal record-keeping about complaints of structural issues related to buildings

Recommendation 1.22

Municipalities should be required to keep a record, listed by municipal address, of every complaint received by a municipal official of a breach of a property standards by-law, the regulations of the *Building Code Act*, or the *Building Code* that relates to the structural capacity, watertightness, or safety of a building, whether that complaint was received in writing or not. This record should be of the action taken by the municipality and the remedial action taken by the owner and should be in electronic form and easily accessed by any member of the public.



The regulation of the engineering and architecture professions

Recommendation 1.23

The Professional Engineers of Ontario should issue a clear direction to its members that the contents of an engineering report, or draft report, including a Structural Adequacy Report, should not be altered simply because the client requests that it be changed. Rather, any alteration of an engineering report, or draft report, should be based on sound engineering principles or changed facts.

Recommendation 1.24

The Professional Engineers of Ontario should establish a system of mandatory continuing professional education for its members as soon as possible, and in any event no later than 18 months from the release of this Report.

Recommendation 1.25

Members of the Professional Engineers of Ontario should directly and promptly advise clients (past and present) of any suspensions or revocations of their licences, and the reasons therefor, that arise out of disciplinary actions resulting from

- (a) errors in design;
- (b) errors in calculations;
- (c) failure to properly inspect;
- (d) failure to report an unsafe condition;
- (e) failure to comply with the requirements of the Structural Adequacy Report; and
- (f) any and all matters that had a direct or indirect effect on the structural stability of a building or put the health, safety, and welfare of the public at risk.

Recommendation 1.26

The Professional Engineers of Ontario (PEO) should provide, for the benefit of the public, the following information on its public website in a format readily and easily searchable by the name of the PEO member:

- (a) the name of every licensee and every holder of a certificate of authorization;
- (b) the terms, conditions, and limitations attached to the licence or certificate of authorization;
- (c) a note of every revocation, suspension, cancellation, or termination of a licence or certificate of authorization;
- (d) information concerning upcoming Discipline Committee hearings, where a Notice of Hearing has been issued;
- (e) information concerning any findings of professional misconduct or incompetence, for a period of 10 years from the date of the finding(s), so long as the Discipline Committee had ordered publication with names; and
- (f) such other information as the Registration Committee or Discipline Committee directs.

Recommendation 1.27

For the construction of any buildings requiring the services of more than one professional consultant, either a professional engineer or an architect should be designated by the owner or the owner's agent as the prime consultant to perform the roles and responsibilities of that position, as defined by one or the other or both of the Professional Engineers of Ontario and the Ontario Association of Architects.



Elliot Lake Retirement Living and its business records

Recommendation 1.28

Elliot Lake Retirement Living should be more open and transparent in its business dealings. It should be subject to the *Municipal Freedom of Information and Protection of Privacy Act* and have the same obligation as the City of Elliot Lake to make its records available to the public.



The Ministry of Labour

Recommendation 1.29

An employer should be required to notify the Ministry of Labour of any recommendation or complaint that it receives from a Health and Safety representative or a Health and Safety Committee relating to the structural soundness or watertightness of the building in which the workplace is located.

Recommendation 1.30

On receipt of a Structural Adequacy Report that describes breaches of the Minimum Structural Maintenance Standard in a building that is a workplace, the chief building official in the municipality where the workplace is located should be required to forward that report to the Ministry of Labour as soon as practical, but in any event no later than 20 days after it is received. The Ministry of Labour should refer to these Structural Adequacy Reports in determining the priority of workplaces that will receive proactive inspections.

Recommendation 1.31

There should be minimum standards for Ministry of Labour inspectors when they are conducting an inspection in response to a complaint regarding the structural soundness, watertightness, or structural safety of a building in which a workplace is located.

Recommendation 1.32

The Ministry of Labour should notify the relevant chief building official of any information that it receives regarding contraventions or possible contraventions of the *Occupational Health and Safety Act* relating to

- (a) the structural soundness of a workplace;
- (b) the watertightness of a workplace; and
- (c) whether a building in which a workplace is located is unsafe.

Recommendation 1.33

Ministry of Labour inspectors should receive more comprehensive training on issues related to structural soundness, watertightness, and building safety.



The Emergency Response and Inquiry Process

Summary of conclusions	41
Emergency response in Ontario	42
First response and deployment to Elliot Lake	44
The collapse	44
The Elliot Lake Fire Department and OPP first responders	44
The OPP UCRT team	46
The Office of the Fire Marshal	46
Ministry of Labour deployment to the rescue scene	46
Deployment of HUSAR/TF3	47
Rescue efforts (June 24, 12:30 a.m., to June 25, 9:30 a.m.)	47
HUSAR/TF3 assumes <i>de facto</i> command	48
A rudimentary action plan is developed	48
Shoring of the Hotel lobby begins; there are more signs of life	49
Crane rigging work brings the workers closer to a victim	49
The victims' families are not kept properly informed	50
Calling off the rescue: It is now a recovery (June 25, 9:30 a.m. to 7:30 p.m.)	51
Political intervention and resumption of rescue / recovery (June 25, 7:30 p.m., to June 27, 6 a.m.)	53
The resumption of the rescue: more akin to a "recovery"	54
Victim recovery on June 27	55
The victims: cause and time of death	56
After-action reports, debriefings, and lessons learned	58

General conclusions59

- The time of death: Could a different or more rapid response have made a difference?59
- The speed of the response59
- Deployment numbers could have been higher60
- The rescue operation60
- General observations.....61

Inquiry Process.....62

- A brief summary of my Part Two and Inquiry Process recommendations62

-
- *True heroism is remarkably sober, very undramatic.*
-
- *It is not the urge to surpass all others at whatever cost,*
-
- *but the urge to serve others at whatever cost.*
-
-
-

– Arthur Ashe

Part Two of the Report is dedicated to all first responders – those who put their life and health in harm's way to help others. They are our heroes.



Part Two of this Report examines the emergency response in the aftermath of the Algo Mall collapse. Unlike Part One, which reviewed a span of more than 30 years, Part Two sets out a story of less than one week's duration. Compared to the behaviour of many of the players whose three-decade-long involvement in the Mall's well-being may be questioned and criticized, the emergency response cannot be faulted for lack of praiseworthy intentions, engagement, determination, and, not infrequently, bravery and courage.

During the response, a congruence of errors – some minor, some more important – led to a rescue effort that was no model of perfection. As a result, questions will long persist about the possibility that Lucie Aylwin could have been rescued. A critical analysis of the rescue effort is therefore crucial to identify error and confirm success.

The evidence I heard in the second phase of the Inquiry provided me with a view into the world of emergency management and response. This world, I have come to learn, is heavily populated by totally committed, selfless, and courageous men and women. That said, it still remains that most human endeavours can be improved upon. The criticisms I make about any aspect of the response to the Algo Mall collapse should not be interpreted as a lessening of my esteem and admiration for our first responders.

In this section of the Executive Summary, I provide a focused overview of the evidence of Part Two of the Inquiry, along with brief conclusions and a summary of my recommendations. The full story and analysis are contained in the second volume of my Report.

Summary of conclusions

Stated in their simplest terms, my principal conclusions for this part of the Inquiry are as follows:

- Doloris Perizzolo's death was nearly instantaneous after the collapse, but it is probable (though by no means certain) that Lucie Aylwin survived under the rubble for a period of up to 39 hours. It is unlikely that she survived beyond 5 a.m. on June 25. There is a possibility she might have been rescued, but we will never know for sure.
- Local authorities acted promptly and appropriately in the immediate aftermath of the collapse. They evacuated the Mall, helped the injured, and secured the site by shutting off utilities and establishing site control. Provincial authorities were rapidly informed, and assistance was summoned after the declaration of a municipal emergency.
- HUSAR/TF3 (the Heavy Urban Search and Rescue Toronto Force 3 team) could have deployed more rapidly. The speed of deployment of UCRT (the OPP's Urban Search and Rescue and Chemical, Biological, Radiological, Nuclear, and Explosive Response Team) was exceptional.
- The number of members of both HUSAR/TF3 and UCRT who deployed was not optimal, particularly at the command level.
- The lack of an incident action plan was detrimental to the rescue effort.

- The Incident Management System was improperly applied: no one understood or respected its mandated command structure.
- The relationship between HUSAR/TF3 and UCRT was occasionally problematic.
- There was a failure to resort to crane / rigging operations early and consistently – they were relegated to a solution of last resort.
- Record-keeping and note-taking were deficient.
- Communications among responders, with victims' families, and with the media and the general public were poor.
- Although it was proper to remove the rescuers from the building because of the dangerous state of the rubble pile, the rescue was abruptly called off, instead of being paused while alternative methods were considered.
- The services offered by Ontario Mine Rescue should not have been ignored.
- The role of Ministry of Labour officials was widely misunderstood.
- After-action debriefings and after-action reports were either non-existent or poorly done.
- Provincial legislation, including the *Coroners Act*, does not allow an official to demolish a building to retrieve a body.
- The premier of Ontario, the Premier's Office, and other provincial authorities acted with leadership, genuine compassion, and assistance when hope seemed lost.
- Ontario's urban search and rescue system needs a careful re-examination to provide better overall geographical coverage and quality of service.

One final comment: I was informed during the hearings that Fire Chief Paul Officer's nomination of certain of his Elliot Lake firefighters for the Ontario Medal for Firefighter Bravery Award had been put on hold until this Commission completed its work. These awards should wait no longer. Those commendations are richly deserved.

Emergency response in Ontario

The province's emergency response regime is characterized by "graduated problem solving." The first response to an emergency is almost always local or "bottom up" and, as a rule, managed at the municipal level. If the local municipality is overwhelmed and local mutual aid systems are insufficient, it can look to the Ontario government for further support.

Pursuant to legislation, Ontario municipalities must have an emergency response structure in place. The essential elements include an emergency management program, an emergency response plan, a Community Control Group (CCG) to direct the municipality's response during an emergency, and an Emergency Operations Centre working under the CCG's direction. An incident commander – the local fire chief, for example – is in charge at the site of the actual emergency.

The province does not manage the local response unless a provincial emergency has been declared. It can nevertheless play a key supporting role. The Ministry of Community Safety and Correctional Services (MCSCS) is the lead ministry for emergency response. It houses key players such as Emergency Management Ontario (EMO), the Office of the Fire Marshal (OFM), and the Provincial Emergency Operations Centre (PEOC).

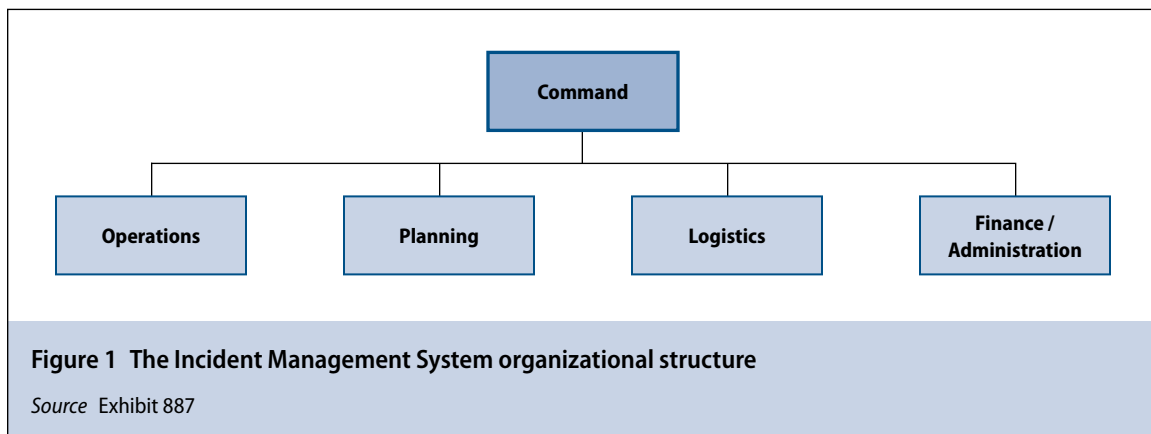
In the event of a building's structural collapse, the province has access to two urban search and rescue teams trained to rescue trapped persons. The first is HUSAR/TF3, operated by the City of Toronto and mandated to deploy up to 76 members within six hours. The second is the OPP's UCRT, a medium-sized team located in Bolton, north of Toronto, which is able to deploy up to 28 members but with a faster response time. The cities of Ottawa and Thunder Bay each operate their own medium search and rescue teams, but these teams are not deployable by the province.

The Ministry of Labour has the jurisdiction to enforce the *Occupational Health and Safety Act, 1997*, at the scene of an ongoing emergency response (as a workplace) and can also provide technical and engineering support to rescue workers. Its role was a point of confusion for many people during the Elliot Lake emergency response.

Finally, I wish briefly to mention Ontario Mine Rescue (OMR), even though it did not take part in the Elliot Lake response. It is a highly trained and experienced emergency response organization with a disciplined command structure and similar skills and equipment to those of HUSAR/TF3 and UCRT. With a base in Sudbury, it could have been in Elliot Lake in two-and-a-half hours. OMR does not have an agreement with the Ontario government to provide assistance in emergencies occurring in places other than underground mines, and it was not asked to help in Elliot Lake despite offering its services on June 25.

Assistance in an emergency can also come from other provinces and the federal government. Heavy urban search and rescue teams are located in Vancouver, Calgary, Brandon and Toronto, and can be deployed if they are not otherwise in use. The province must specifically request assistance from the federal government unless the emergency, such as acts of terrorism, is clearly under federal jurisdiction.

Ontario has developed and promoted the Incident Management System (IMS) for emergency management. It is standardized and "scalable" to any size of response and is structured around five major management functions that are expected to form part of every incident response: command, operations, planning, logistics, and finance and administration (fig. 1).



Under the IMS doctrine, there are two models of incident command: single and unified. Single command is under the head of one rescue team, while unified command is in essence under a committee drawn from some or all of the response organizations deployed to the scene. Once the command structure is established, either single or unified, IMS calls for an incident action plan, which, depending on the complexity of the situation, can be oral or written. Its purpose is to provide clear, strategic, and tactical direction to the response. Initial and ongoing briefings should occur – to explain the plan, revisit it, and consider “Plan Bs” if necessary.

The Incident Management System is not mandatory, though it is recommended. Emergency response organizations can use parts of it or, presumably, not use it at all.

First response and deployment to Elliot Lake

The collapse

A portion of the Algo Mall rooftop collapsed on June 23, 2012, at 2:18 p.m. Video footage showed Doloris Perizzolo and Lucie Aylwin at a lottery kiosk near the food court only a second or two before the roof crashed down on them. The collapse was abrupt, precipitous, and without any forewarning.

The collapse was abrupt, precipitous, and without any forewarning.

Eyewitness accounts were graphic. One man described yanking his wife back just in time to avoid the falling debris; she suffered only a minor flesh wound. Others were hit, one knocked temporarily unconscious but still able to exit. There were children near, but not in, the collapse zone. Screams could be heard, along with the sound of burst pipes and gushing water. Staff from various businesses helped direct people to emergency exits, but the process, which lasted only minutes, felt to one witness like hours. As a

result of the collapse, 19 people were treated at the hospital for injuries and symptoms ranging from headaches to rib fractures.

The families of Mrs. Perizzolo and Ms. Aylwin quickly learned of the collapse and the possibility that their loved ones were trapped. They headed to the Mall and eventually gathered at the nearby Collins Hall, which had been set up to accommodate the families of victims and potential victims as well as concerned members of the public. The scene there was chaotic as the number of missing individuals was still unknown.

The Elliot Lake Fire Department and OPP first responders

The Elliot Lake Fire Department arrived on the scene at 2:29 p.m. First steps included shutting off the gas, water, and hydro. Chief Paul Officer assumed the role of incident commander. The City’s chief building official and two firefighters entered the building and went to the collapse zone to assess the situation. Chief Officer activated the Community Control Group, while local OPP and firefighters ensured that the Mall was empty. The OPP secured the perimeter. Chief Officer also entered the collapse zone and asked his firefighters to look for survivors in the wreckage, taking care not to cause further collapse.

Chief Officer quickly realized that the situation was beyond the Fire Department’s capabilities. By 3:30 p.m. he had spoken to someone from the Office of the Fire Marshal in Toronto to advise that HUSAR/TF3 would be needed. He also activated the mutual aid protocol Elliot Lake had in place with the neighbouring Blind River Fire Department.

The firefighters looking for survivors in the collapse zone described a dangerous scene. Giant concrete slabs from the collapsed roof were perched precariously on a downward angle on the escalator and stairs connecting the roof level to the second floor, just above and south of the rubble pile in the collapse zone. Questions immediately arose about the ability of the beam supporting that escalator to carry the additional load. A half-attached beam was suspended menacingly from above. An SUV had fallen through and sat upright on the pile. The broken concrete slabs and debris in the pile were too heavy for the firefighters to move, but they scoured it nonetheless, moving small pieces, checking for voids, looking to see if anyone could be saved.

Memories of the first hours of the rescue were hazy for witnesses – a situation similar to soldiers’ recollections from the “fog of war.” Times given were uncertain, at best. Nevertheless, at approximately 3:28 p.m., firefighters thought they had located someone alive in the rubble. One firefighter, after calling out, heard a muffled reply. Over a span of 20 minutes, he heard a muffled noise in response to six of his 10 questions. A second firefighter continued the attempts, as others tried unsuccessfully to move the heavy debris. Eventually, the victim, believed to be female, stopped responding.

Memories of the first hours of the rescue were hazy for witnesses – a situation similar to soldiers’ recollections from the “fog of war.”

Meanwhile, Chief Officer’s request for help had reached Staff Insp. William Needles, the on-call site commander for the HUSAR/TF3 team. He received word of the collapse at 3:45 p.m. At 3:55 p.m., the mayor of Elliot Lake declared a state of emergency. The declaration was faxed to the Provincial Emergency Operations Centre, which is staffed at all times to monitor and report on all potential or actual emergencies.

Insp. Percy Jollymore, the local OPP detachment commander, established a missing persons list at the Collins Hall. He made arrangements for victim support services. The missing persons list constantly fluctuated, but two names on the list persistently remained – Ms. Aylwin and Mrs. Perizzolo.

At 4:30 p.m., a body later identified as Mrs. Perizzolo’s was located by a firefighter at a location different from that of the muffled voice. A hand and a foot were visible. Her wrist gave no pulse, and she was believed by the firefighters and paramedics to be deceased. Age spots on her hand hinted that she was elderly. Chief Officer’s view, at this time, was that two people were trapped: one showing signs of life but having ceased communication, and the other dead.

Firefighters used sewer cameras to search the debris pile but found nothing. Chief Officer began to worry that his crew was accomplishing little while putting itself in grave danger. He witnessed his firefighters trying manually to move slabs of concrete hanging down from the second level, and he was concerned about the possibility of a further collapse. A little after 5 p.m., he pulled all but three of his men off the pile.

At 6:14 p.m., rotor wash from an OPP helicopter flying overhead caused the hanging beam to sway. Insp. Jollymore had ordered the helicopter pilot to take pictures of the scene despite the fact that Chief Officer was the incident commander in charge. Chief Officer was forced to pull his men from the hot zone. He tried, at first unsuccessfully, to wave off the helicopter, but he was not radio linked to the OPP, and OPP personnel on the ground were not linked to the helicopter. Contact was eventually made, but not before a disquieting delay.

Chief Officer decided not to send his men back into the danger zone. He chose instead to await the arrival of experts.

The OPP UCRT team

UCRT received a call to mobilize at 2:34 p.m. Although UCRT was normally commanded by a staff sergeant, Sgt. Jamie Gillespie was the highest-ranking officer able to deploy. In all, only 10 UCRT members were available to deploy.

Sgt. Gillespie spoke to the local OPP detachment commander and learned that people were likely trapped. He assigned Cst. Ryan Cox, who happened to have training in rigging operations and the lifting of debris, to be in charge of deciding what equipment to take. A UCRT advance team left for Elliot Lake at 4:16 p.m. The trailer and equipment left shortly after, and most of the team arrived in Elliot Lake between 9 p.m. and 9:30 p.m.

Using Internet images he found of the collapse zone, Cst. Cox saw the heavy slabs in the middle of the collapsed structure and determined that a crane would be one of the fastest and safest methods of removing the debris. As early as 5:30 p.m. to 6 p.m., he conveyed the message to Insp. Jollymore that a crane should be ordered, and soon after he spoke to him directly. Insp. Jollymore hesitated, for reasons I was not fully able to determine, and the crane was not ordered until 11:15 p.m., five to six hours after Insp. Jollymore first became aware of the need. By that late hour, the crane operator, Millennium Crane in Sault Ste. Marie, could not mobilize quickly. It was Saturday night and its crew was dispersed.

Without a crane, UCRT could accomplish little when it arrived on site. An initial plan was devised to lower two members by rope into the collapse zone to attempt to locate potential victims and signs of life, but “widow makers” (pieces of concrete) hung perilously over the edge of the collapse site. The lack of an exit strategy if the building became unstable made Sgt. Gillespie hesitate.

The Office of the Fire Marshal

Chief Officer’s call to the Office of the Fire Marshal quickly alerted Carol-Lynn Chambers to the situation in Elliot Lake. She was the operations manager of the Emergency Preparedness and Response Unit. Within a short period, she had spoken to or contacted a number of people and organizations, including Chief Officer, the Provincial Emergency Operations Centre, the OPP duty officer, UCRT’s Sgt. Gillespie, and HUSAR/TF3. Three OFM staffers were quickly dispatched to Elliot Lake to assist, and, later that night, they participated in a Community Control Group meeting. For the next few hours, Ms. Chambers played the role of information quarterback, transferring information to and between Chief Officer in Elliot Lake, UCRT, HUSAR/TF3, and others, updating other government officials, and assisting with logistics, such as meals and sleeping arrangements for rescue workers headed to Elliot Lake. The OFM’s involvement was efficient, focused, and useful.

Ministry of Labour deployment to the rescue scene

At about 5:45 p.m. on June 23, the Ministry of Labour dispatched Roger Jeffreys, the ministry’s provincial engineer, to the rescue scene. Mr. Jeffreys had significant experience as a structural engineer. He was told someone was trapped and was given what he described as “very unusual” instructions – he was not sent to Elliot Lake to enforce the *Occupational Health and Safety Act, 1997*, but to provide whatever help he could to further the rescue efforts. He arrived in Elliot Lake that night, at 12:30 a.m. on June 24, and met up with two ministry inspectors. The inspectors had been sent for more conventional purposes – to investigate the collapse in response to a call from Ms. Aylwin’s employer. That said, the inspectors would also end up providing logistical assistance during the rescue and recovery efforts to follow.

My Inquiry revealed significant confusion about the role of the Ministry of Labour at the scene of an ongoing rescue. It soon became clear that ministry staff and rescue workers had never been trained on the

role and powers of the ministry at either a rescue with live victims or at a recovery, where the victims are believed to be deceased.

The presence of the Ministry of Labour would create confusion and even some delay for the rescue workers, though through no fault of the ministry itself. The Community Control Group made a decision at 6:30 p.m. on June 23 not to proceed with rescue efforts until the Ministry of Labour gave its clearance. Somehow, perhaps as a result of the “fog of war,” this decision morphed into a rumour that the ministry had shut down rescue efforts. No such order had been issued, nor would it ever be issued. The rumour spread nonetheless, and even important people on the scene believed it to be true – including Staff Insp. Needles and Chief Officer.

The presence of the Ministry of Labour would create confusion and even some delay for the rescue workers, though through no fault of the ministry itself.

Deployment of HUSAR/TF3

The HUSAR call-out would yield barely half its full team and would lack key personnel, most notably a trained planning section chief. Thirty-three team members and three drivers were deployed. Because the team is made up of volunteers, the members cannot be forced to attend.

Call-out was at approximately 4 p.m., but HUSAR/TF3 did not depart for Elliot Lake until 10 p.m. While this response was just within HUSAR/TF3’s mandated time frame for deployment, I was struck by how long it took to get the team on the road. The main delay seems to have related to a problem in obtaining tractors and drivers. HUSAR owned its own trailers, but had to rent tractors. Toronto Water agreed to provide the missing drivers, despite the lack of a formal arrangement to do so. The rental process took time and was not initiated until 5 p.m. The drivers did not leave HUSAR/TF3’s home of operations (located at Old Eglinton Avenue near the Don Valley Parkway, and also the location where equipment was stored) to pick up the rental tractors until 6:08 p.m. They had to go all the way to Mississauga in a police car to do so, and did not return to the home of operations until 8:10 p.m. to pick up the trailers and equipment.

HUSAR/TF3 members had, in the meantime, reported to the designated muster point at McCowan Road and Finch Avenue, which provided a better staging area for operations. There they were given a brief physical examination to verify they were fit for the mission ahead. At 9:15 p.m. they received their kit bags, which had been shipped in a cube van from the home of operations to the muster point, and then boarded the team bus that would transport them to Elliot Lake.

At 9:56 p.m., the drivers and tractors left the home of operations, met up with the bus at a Petro-Canada station north of Toronto, and travelled in a convoy to Elliot Lake. The team arrived there at 4:18 a.m. on June 24, exactly 14 hours after the collapse.

Rescue efforts (June 24, 12:30 a.m., to June 25, 9:30 a.m.)

At 12:45 a.m. on June 24, Sgt. Gillespie and Mr. Jeffreys assessed the structural stability of the Mall. A new hazard was noted – a crack between the floor and the upper part of the escalator that bore the weight of the concrete slabs. The movement of this crack would later become a determining factor in the decision to stop the rescue efforts and clear the rescuers out of the Mall. Mr. Jeffreys also noted that the beam supporting the bottom of the escalator was “noticeably bowed” – an indication of significant structural distress in the area above the spot where Ms. Aylwin was believed to be located. The two men discussed the possibility of shoring the beam with wooden or steel shores.

HUSAR/TF3 assumes *de facto* command

Once HUSAR/TF3 arrived at the scene, confusion arose about the proper chain of command. Staff Insp. Neadles quickly took over and made decisions without consulting or seeking approval from Chief Officer, the actual incident commander. Chief Officer, for his part, failed to appreciate his role and essentially acquiesced in relinquishing his command.

Perspectives varied among those at the scene as to who was really in charge. Staff Insp. Neadles acknowledged in his testimony that Chief Officer was incident commander, but his (Staff Insp. Neadles's) actions throughout the deployment indicated that he felt otherwise. Sgt. Gillespie said he understood that Chief Officer remained incident commander. His UCRT team fell under HUSAR/TF3 direction, albeit with the intent that UCRT maintain a command presence. In fact, UCRT was never given a presence in the command tent. UCRT numbers were low, and Sgt. Gillespie made the decision to stay with his team during operations.

Mr. Jeffreys's perception was that Staff Insp. Neadles was in charge. Ms. Chambers believed (correctly) that HUSAR/TF3, if not properly reined in, would take over command. She had witnessed a past tendency for HUSAR/TF3 to work independently and not engage with local command, so she told her staff on the ground to remind HUSAR/TF3 to keep Chief Officer informed and to provide him with a radio link.

Whatever the perception, HUSAR/TF3 was now in *de facto* command of the rescue operation. Staff Insp. Neadles did not, however, assign anyone to be planning section chief. The person trained for the position had not deployed. Capt. Tony Comella of Toronto Fire Services, the team coordinator and a member since inception, took on the lion's share of the planning but was never formally assigned the task. From time to time throughout the deployment, he also exercised the duties of safety officer and operations section chief.

I heard no evidence of an initial briefing session to clarify roles and responsibilities.

A rudimentary action plan is developed

Mr. Jeffreys and Sgt. Gillespie took Capt. Comella and the HUSAR/TF3 team engineer, James Cranford, on a tour of the Mall. They noted all the same hazards they had seen on their previous inspection. They could not understand why the concrete slabs on the escalators had not yet plummeted into the collapse zone, and they agreed that the hanging beam needed to be removed.

These four experts discussed how best to approach the rubble pile safely. HUSAR/TF3 thought it would be too dangerous to shore underneath the compromised beam, so that idea was abandoned – at least for the time being. Instead, they decided to shore up the adjoining Hotel lobby to create a safe access to the collapse zone and a safe zone for retreat. Capt. Comella testified that they intended to “tunnel” through the debris to the victims – meaning they would lift, move, and try to stabilize the debris in a direct path to the victims. At this stage, Capt. Comella considered using the crane that had been ordered only as a last resort to remove debris: in general, HUSAR/TF3 did not favour cranes as a means of rescuing people trapped beneath concrete because of the instability these machines might cause. None of the team members (except Don Sorel of Toronto Water, who arrived later) had received adequate training on crane rigging.

The plan was rudimentary at best. It was already 6 a.m. on June 24. The shoring of the Hotel lobby would take 12 hours and bring them only marginally closer to the victims. They had no plan for how the rescuers would tunnel through the debris; indeed, the intent was to avoid the hot zone for the time being. The incident action plan was not put in writing and was communicated orally to Staff Insp. Neadles. He approved it, but no one informed Chief Officer. No briefing was held to discuss the plan and clarify it for others.

One member of HUSAR/TF3, Sgt. Phil Glavin, began to contemplate an entirely different plan early on June 24. He contacted Priestly Demolition because he knew, through his brother's employment there, that the company had a large crane with a long articulated arm that could reach out to, over, and into the collapse zone. The owner, Ryan Priestly, told him the crane was available, but Sgt. Glavin did not discuss the call with anyone on his team.

Shoring of the Hotel lobby begins; there are more signs of life

HUSAR/TF3 workers took the first shift, while UCRT members rested. At 9:30 a.m., rescuers reported the first signs of life since communication had been lost the day before. Rescuers heard a tapping noise in response to a call-out.

Shoring progressed, but the crane did not arrive until approximately 11:15 a.m. Given the late request, Millennium Crane had not been able to mobilize until 6:30 a.m. that morning. Dave Selvers, the company's owner, agreed that the precariously hanging beam was the first thing that needed to be removed.

At 12:10 p.m. on June 24, a HUSAR/TF3 sniffer dog searched the pile and gave a positive indication of a live person in the rubble – a third sign of life.

At 2 p.m., HUSAR/TF3 engineer Mr. Cranford and Capt. Comella again discussed shoring up the bowed beam supporting the escalator and stairs. They were still concerned, however, that the slabs of concrete on the escalator could slide off and injure or kill the rescue workers below. They also thought that restraining the slabs from above was unworkable – it could cause vibrations or shift the loads, and it would require workers to be positioned on top of the slabs. There may have been some discussion about using the crane to move these slabs, but the evidence on this point was confusing. Once again, these strategy discussions were not put to paper or presented at a formal operations briefing where input could have been sought from others. Strategy continued to be developed on the fly.

At 3:45 p.m., a 60-tonne Millennium crane arrived. Mr. Selvers had himself taken the initiative to order it shortly after his arrival. His plan was to use the 60-tonne crane to suspend workers in a basket inside the collapse area so they could cut the beam loose and, with some creative rigging, use the other crane (165 tonnes) to secure and remove the beam once it was cut loose.

Crane rigging work brings the workers closer to a victim

Sgt. Gillespie returned to the rescue scene at 4:30 p.m. as his UCRT team prepared for the next shift. He exchanged radios with HUSAR/TF3 command so he could be kept in the loop. UCRT was joined by new HUSAR/TF3 rescue workers, including Mr. Sorel. As it turned out, this team would make significant progress toward the location where the live victim was believed to be.

A briefing was scheduled to take place at 6 p.m., but it never occurred. No incident plan was developed for the night shift. Once again, things seemed simply to evolve haphazardly. There was still shoring to be done in the Hotel lobby, but now Sgt. Gillespie advised that the hanging beam had to be removed.

The procedure for removing the hanging beam started at 7:50 p.m. and was successfully completed over the next couple of hours. At 9:30 p.m., a fourth sign of life was reported. On this occasion, a UCRT dog – Dare – indicated that there was a live victim in the pile. It was late on June 24, approximately 31 hours after the collapse. After some debate, the decision was made to remove debris from the pile above the presumed location of the victim, using the crane and rigging techniques. Two UCRT and two HUSAR/TF3 members, including Mr. Sorel, were part of the crew.

At 10:45 p.m., Capt. Comella noted that the escalator and stairs appeared to have sunk and settled further since the morning. The crack at the top of the stairs appeared even wider. He and the two engineers made the decision to continue to observe the crack visually every few hours.

At 11:30 p.m., a LifeLocator (a sensitive piece of equipment with the ability to detect faint signs of breathing and movement) was used on the pile to try to find signs of life. Although the results showed breathing, I heard evidence that called into question whether the device had been used properly. In the early morning of June 25, the SUV was hoisted out of the collapse zone. Throughout the night, the rigging of concrete slabs on the debris pile continued. It was a delicate operation, carefully undertaken to avoid a secondary collapse, but progress was being made. None of the workers, to the best of their knowledge, noted any movement of the pile during this process other than one incident when there was a vibration or shuddering effect. Rescue workers also noticed that the debris pile seemed to sink and settle as time progressed.

At 3:45 a.m., HUSAR/TF3's engineer, Mr. Cranford, again discussed shoring the beam under the escalator. The work on the rubble pile was progressing and the rescuers were anticipating moving into the area of the escalators. He noted that steel posts were available for shoring under the escalator. The riggers, though, had been working all night and into the early morning hours. The pieces were becoming more difficult to rig and hoist. At 4 a.m. on June 25, they took a break.

Search dogs from both UCRT and HUSAR/TF3 were again sent onto the pile during this break. This time, however, the dogs did not provide definitive indications of a live victim. It was about 5 a.m. on June 25, approximately 39 hours after the collapse. The LifeLocator was used again and did provide a faint indication of life, though, as before, there were several reasons to doubt that the device was being used properly; in particular, rescue workers were too close to the machine. Search cameras were inserted into cavities in the pile, enabling the rescuers to see fabric near where the live victim was believed to be located – the first visual evidence of a person there.

It was now time for a shift change, but when HUSAR/TF3's alternative commander, Cmdr. Michael McCallion, returned to the scene, tensions flared between him and UCRT's Sgt. Gillespie. Cmdr. McCallion thought the riggers had been operating dangerously close to the overstressed beam and overhanging slabs. However, partly as a result of the LifeLocator results, Cmdr. McCallion allowed the riggers to keep working to pull off a few more slabs in the hopes of uncovering the victim. No riggers were available to replace the original four, so the team that had been on duty all night kept working for three more hours.

Eventually, the riggers were left struggling with one particularly large slab – one that was thought to be directly above the live victim. They developed a plan to drill bolts into the slab to lift it high enough to sling. Before this plan could be implemented, Sgt. Gillespie and Capt. Comella inspected the crack at the top of the escalator. It had grown significantly since the previous inspection, raising fears that the stairs, the escalators, and the beam were approaching the point of collapse. The riggers were pulled off the pile sometime between 9:30 a.m. and 10 a.m. on June 25. They would not soon return.

The victims' families are not kept properly informed

During this first segment of the rescue operation, the victims' families were not provided with adequate information. Although updates at the Collins Hall were fairly regular on June 24 and included information about the obstacles faced by the rescuers, such as the need for shoring and the problems with the escalators, the last update was provided at 6:40 a.m. on June 25. At that point the information flow dried up entirely until 2 p.m. The absence of information, for the families as well as the general public, created turmoil and speculation in the community. Rumours began to spread.

Calling off the rescue: It is now a recovery (June 25, 9:30 a.m. to 7:30 p.m.)

On June 25 at 9:30 a.m., the rigging stopped and the building began to show ominous signs of an imminent collapse. A series of decisions followed which, by mid-afternoon, resulted in the rescue being called off.

Mr. Cranford was asked to determine how much stress was on the beams supporting the escalator and whether they could be shored from below. At the same time, rudimentary devices were created in an attempt to measure the movement of the escalator and stairs more precisely. No workers were allowed back onto the pile until the engineering assessment was complete.

In the meantime, the Community Control Group was told at an 11 a.m. meeting that although work had stopped, the operation was still seen as a rescue. Staff Insp. Needles mentioned the signs of life that had been found that morning – he could have been referring only to the LifeLocator results because he testified that he was not aware that search dogs had failed to indicate a live person. Staff Insp. Needles was also told around this time that a trapped victim could survive three days without water, so the person under the pile could not yet be presumed to have died.

At 12 noon, Capt. Comella checked the measuring device at the top of the escalator at close range, along with Mr. Jeffreys. Capt. Comella noted 2 millimetres of movement since the last reading, and Mr. Jeffreys noted slightly more. The movement was significant – a further indication of an impending collapse.

At a 12:05 p.m. press conference, Staff Insp. Needles told the public about the LifeLocator signs of life from earlier that morning. He also advised that rescue workers were “still diligently working” to get at the trapped person, although they had been forced by the shifting building to retreat and reassess. His words undoubtedly raised the hopes of the community and the victims’ families, though in truth there were questions about the accuracy of the readings. Staff Insp. Needles should not have been so quick to reveal this information, given his unfamiliarity with the device.

The press conference gave a message of hope that someone might be found alive. In actual fact, the decision was made shortly thereafter to cease rescue operations entirely. At 1:30 p.m., Mr. Cranford had completed his engineering calculations. The beam was supporting 4.28 times its theoretical load capacity. If it failed, the consequences would be catastrophic.

Staff Insp. Needles learned of the engineer’s calculations and made the decision to withdraw all rescuers from the building. I find this decision to have been a reasonable one. All indications were that rescue workers on the rubble pile would have been exposed to significant injury or death if the escalator collapsed. What was not reasonable, however, was Staff Insp. Needles’s hasty and ill-considered decision to call the rescue off entirely, without further consultation and without exploring whether anything else could be done.

Staff Insp. Needles announced his decision at a 3 p.m. meeting of the Community Control Group. The news was stark: the rescue was over. It came as a shock to those present, including Chief Officer. Staff Insp. Needles said control of the scene would be turned over to the Elliot Lake Fire Department (a clear misunderstanding of who was actually in charge). Mr. Jeffreys then told the group that the Ministry of Labour would issue an order to prevent entry to the building. While he may not have made it clear, this order would not have applied to rescue workers. Several people emerged from the meeting with the belief that the ministry would prevent the entry of all persons, including rescue workers. This misunderstanding contributed to the general confusion about why the rescue had been called off.

The press conference gave a message of hope that someone might be found alive. In actual fact, the decision was made shortly thereafter to cease rescue operations entirely.

The news that the rescue was over was also delivered to the victims' families in a less than sensitive manner. The families had heard the same hopeful news at the noon press conference: someone might still be alive. They had also been told at 2 p.m. by Insp. Jollymore, albeit rudely, that breathing had been heard that morning, but there was still rubble to be removed. Now, only two hours later, at around 4 p.m., Mayor Richard Hamilton, Insp. Jollymore, and Staff Insp. Neadles went together to the Collins Hall to announce that the rescue was over.

I heard evidence from several family members about how this dire news was delivered. No attempt was made to ensure that all the family members were present – and a number were not. The news was delivered in the room where members of the general public were present, and no attempt was made to find a private space for the victims' families. In front of all those assembled, Staff Insp. Neadles advised that, despite the possibility that someone was still alive, the rescue could not proceed. Demolition, he said, was the only process available to recover the bodies. HUSAR/TF3, it seemed, was going home. There was no mention of an alternative plan.

It was devastating news – and poorly delivered. Mrs. Perizzolo's daughter, Teresa Perizzolo, collapsed to the floor. Mrs. Aylwin, Lucie Aylwin's mother, sank screaming into a chair. Ms. Aylwin's father, who had spent his working life in underground mines, suggested mine rescuers could go in but was told this possibility was not an option. The discussion became heated – the family members refused to accept that the rescuers were just going to leave the victims where they lay.

News that the rescue was over was then delivered to the public at a 5 p.m. press conference. Staff Insp. Neadles explained the engineer's calculations and his decision to remove rescuers from the structure. Again, the clear message was that the rescue was over, with no alternative plans contemplated. The building was to be turned over to local authorities. The Ministry of Labour was to draft an order requiring demolition by the owner and respectful removal of the bodies.

The public was outraged by the news. Questions from the media and the public clearly focused on the fact that a living person might still be trapped in the debris.

The public was outraged by the news. Questions from the media and the public clearly focused on the fact that a living person might still be trapped in the debris. Again, someone suggested that Ontario Mine Rescue might help.

Following the press conference, the community of Elliot Lake reacted with understandable frustration. A crowd gathered outside city hall and around the Mall and grew rapidly in size. Local MPP Michael Mantha described the environment as toxic. The community, he felt, would soon take matters into its own hands. There were rumours of a plan to storm the Mall. The OPP reinforced its presence at the perimeter and engaged the people in dialogue. In the end, the townspeople did not storm the Mall and no one was arrested.

Meanwhile, a group of officials met to consider who had the authority to undertake a controlled demolition of the building to access the victims. The group included the regional coroner, the Ministry of Labour, the OPP, the Office of the Fire Marshal, and City officials. They concluded that they all lacked this authority.

In addition to his comments to the Community Control Group, the families, and the public, Staff Insp. Neadles, according to the evidence I heard, had no other options in mind, and his decision to end the rescue was final. Mr. Cranford, the HUSAR/TF3 engineer, was told that he was no longer needed, and Mr. Sorel had been sent home earlier that day. Mr. Mantha had discussions with HUSAR/TF3 between 7 p.m. and 8 p.m. that left him with the clear impression that the whole team would soon be departing.

If Staff Insp. Neadles had engaged in further consultation before his decision to call off the rescue, he might at least have learned of other options. He never spoke directly to Mr. Cranford, for example, whose calculations

were so integral to the decision to evacuate the building. He might have learned that Mr. Cranford had also calculated that the overstressed beam could be shored using only two steel shores and lateral bracing. It might not have worked, but in the rush to decision, this option was never considered except briefly by Capt. Comella alone. If Staff Insp. Needles had been open to other suggestions and dialogue, he might also have learned sooner of Sgt. Glavin's idea to use the Priestly machinery.

Political intervention and resumption of rescue / recovery (June 25, 7:30 p.m., to June 27, 6 a.m.)

The involvement of the Premier's Office led directly to the resumption of the rescue / recovery efforts at the Algo Mall. Premier Dalton McGuinty and his office staff had been monitoring events in Elliot Lake closely, and in the early stages they were satisfied with the assurances they received that things were unfolding as they should. On June 25, at noon, like the public at large, the Premier's Office learned of one likely fatality but also of signs that another person was trapped and possibly still alive. It too had the impression that rescue workers were still trying to figure out a way to save her.

At 2:50 p.m., the Premier's Office was advised that the rescue had been called off, but the premier did not learn of the stoppage until 6 p.m. He had been occupied in an extended phone call. He was shocked and found the decision unacceptable. If someone was alive, he said, something more needed to be done. He asked immediately for a conference call with his staff and with people on the ground in Elliot Lake.

At this same approximate time, 6 p.m., Sgt. Glavin returned to duty, also unaware that the rescue had been called off. Although the exact time is not clear, he spoke to Staff Insp. Needles soon after about a "Plan B." He told him of the Priestly machine and its abilities. This idea was new to Staff Insp. Needles, although he was aware of Priestly Demolition. He instructed Sgt. Glavin to explore the possibility, but not to "spend a dime" doing so. Sgt. Glavin was not able to reach Mr. Priestly until 8 p.m.

At 7:30 p.m., an internal conference call took place between the premier and his staff in which Mr. McGuinty questioned whether additional expertise could be brought in and stressed that they owed the community something more than had been provided. He suggested that, if the victims could not be reached from the inside, perhaps rescue crews could work from the outside in. At 8:05 p.m., Dan Hefkey, the commissioner for community safety, spoke to Staff Insp. Needles to ask him to consider other resources and to be available for a call with the premier. Staff Insp. Needles did not mention Priestly Demolition at the time. Indeed, Sgt. Glavin had only just made contact with Mr. Priestly, who, after viewing photos of the site, said he felt the company's machine could do the job.

The conference call with the premier and Staff Insp. Needles took place at approximately 8:30 p.m. Mr. Hefkey took part, as did other high-ranking officials. Staff Insp. Needles explained why the rescue had been called off, and, in response to questioning from the premier, he said there was a remote chance that someone was still alive. He suggested, however, that the victim might well die from sudden shock when the concrete overlying her was removed, though he was not quite correct in his description. Crush injury is treatable, and the paramedics at the scene were aware of the required treatment and had prepared for it. The premier emerged from the conference call with the impression that it was possible that someone was still alive.

The premier asked whether the rescue workers could go back into the Mall. He was told they could not – the building could collapse at any moment. Staff Insp. Needles also told the premier that no one else was available and able to do the job.

The premier then inquired whether the building could be dismantled. It was at this point that Staff Insp. Neadles mentioned the possibility of using the Priestly crane. The premier approved of the idea and offered whatever assistance was needed. Although there was a risk of secondary collapse or falling debris during the process, the option seemed far preferable to the premier than leaving a potential victim to die in the rubble.

The premier's intervention immediately led to tangible results.

The premier's intervention immediately led to tangible results. Premier McGuinty spoke to Mr. Mantha after the conference call and told him that heavy equipment would be transported in to restart the rescue efforts. Mr. Mantha ran as quickly as he could to city hall to tell people the news. The public mood immediately improved.

The news that the Priestly machine would be used was shared with the Community Control Group at 9 p.m. The general sentiment there, however, remained sombre. Those present thought it unlikely that a live person would be recovered, but, if there was a glimmer of hope, it was at least worth trying.

The resumption of the rescue: more akin to a “recovery”

What ensued late on June 25 and into June 26 was a renewed sense of urgency and determination, even though there was now very little likelihood that someone was still alive. In many respects, however, the actions of the rescue leaders and some of the workers were, from this point on, more consistent with a recovery operation than a rescue. As but one example, as he drove back to Toronto, Mr. Cranford was initially asked to return to Elliot Lake but then told to continue home. Staff Insp. Neadles was not consulted on the decision.

Plan B also took more time than necessary to develop. The Priestly equipment was not ordered until 1:46 a.m. on June 26. It clearly could have been ordered earlier. There were three pieces in total, one in Aurora (near Toronto) and two in Sudbury. The large crane in Aurora – a Komatsu PC 850 with a 150-foot vertical reach – had first to be disassembled and then transported by tractor-trailer to Elliot Lake. It was an impressive piece of machinery with the longest articulated arm of any demolition equipment in Ontario and had previously been used in the World Trade Center disaster. The two machines in Sudbury were a Link Belt 460, able to cut steel and rebar, and a Komatsu PC 490 with a precision grapple.

Rescue workers in Elliot Lake prepared for the crane's arrival, which included creation of a gravel platform outside the building, a path to the Mall, and the raising of hydro lines. More shoring was done, in part to protect against vibrations but also to show the public that something was being done as the rescue team waited for the Priestly convoy to arrive.

The Collins Hall was reopened, but by this time OPP victim liaison officers had been assigned to work specifically with the victims' families at a different and private location. These officers should have been brought in to assist the families much earlier.

The Canadian military was on standby in response to a call from Premier McGuinty to Prime Minister Stephen Harper. A mining company was also on standby to assist. Mr. Hefkey, accompanied by the minister of Northern Development and Mines, arrived in Elliot Lake on the morning of June 26 to assist as the provincial spokesperson with communications. Staff from the Premier's Office soon followed. The premier spoke by phone to the Aylwin and Perizzolo families to offer support. All eyes were on Elliot Lake, and the media attention was intense. Community frustration began to build again as time passed and still the Priestly crane had not arrived.

Mr. Priestly arrived at approximately 4 p.m. in his own truck, before the large crane. He met with Capt. Comella, Staff Insp. Neadles, and Mr. Jeffreys. He surveyed the site and, like others before him, thought it only a matter of time before the beam supporting the escalator and its load would fail. He was shown the location of possible

victims and also the location of the potentially live victim, now marked with a pylon. In his subsequent operation in charge of the crane, he proceeded on the assumption that Ms. Aylwin was still alive.

Mr. Priestly suggested they use the time available to draft a written plan. He consulted Mr. Jeffreys, Capt. Comella, and others. The essence of the plan was to have the arm of the large Priestly crane reach into the collapse zone over the top of the escalators and pull them, along with the core slabs on top, back and away from the collapse zone. This plan, entitled “Rescue / Recovery Procedure Plan,” was signed by Mr. Priestly, Mr. Jeffreys, and Staff Insp. Neadles. Staff Insp. Neadles confirmed that this document was the first written plan of the entire operation.

The large crane arrived on site at 6 p.m. on June 26 and took two hours to assemble. Mr. Priestly then attempted to reach the beam and the escalator with his crane, but it was immediately apparent that the arm could not reach far enough. Luckily, the written plan included a Plan B, also a first for the Elliot Lake operation. This plan was to remove the penthouse above the escalators and to “nibble” down into the building to clear a path to the collapse zone. The only difference with the initial plan was that the overstressed beam would remain in place a while longer, until it could be accessed and removed. The hope was to avoid a secondary collapse by nibbling at the structure in a controlled and careful manner.

This approach worked, although it took time. The demolition started at 9 p.m. and Mr. Priestly, who was personally operating the equipment, was eventually able to reach into the zone, cut the overstressed beam using the smaller Link Belt 460, and gently lower the escalator – weighing about 10 tonnes – to the ground, with the overlying core slabs still lying on it. To Mr. Priestly’s knowledge, nothing fell on the pile below. The demolition process continued until the rescuers had clear access to the pile. The Priestly machinery proved very effective – able to move and slice through material with surgical precision, without putting rescue workers in the danger zone.

The demolition was complete by approximately 6 a.m. on June 27. The pylon had not moved.

The Priestly machinery proved very effective – able to move and slice through material with surgical precision, without putting rescue workers in the danger zone.

Victim recovery on June 27

At 6 a.m. on June 27, a sniffer dog search of the collapse zone indicated two deceased persons, including one cadaver hit where the search dog Dare had earlier indicated a live person. The locations corresponded to the exact positions where Mrs. Perizzolo and Ms. Aylwin would soon be removed from the debris. The coroner arrived at the scene at 6:50 a.m.

There were still significant amounts of rubble and pieces of broken precast slabs to be removed before accessing the bodies. The rescue workers focused first on recovering Mrs. Perizzolo’s body, despite the understanding that she had long since been deceased. Less work was required to get at that body, and, according to those present, the debris above her needed to be moved before it would be possible to safely remove the debris above Ms. Aylwin.

Mr. Priestly, whose equipment was still needed to move slabs and debris from above the victims, insisted at the Commission that the rescue team worked urgently, but carefully, in an attempt to remove the victims and with a hope that someone was alive. However, contemporaneous correspondence from Staff Insp. Neadles made it clear that the operation was viewed as a recovery. Moreover, the way in which the operation proceeded placed great emphasis on the safety and preservation of the bodies. If the rescue workers truly believed in the

possibility, at this stage, that someone was alive, I believe they would have moved more aggressively toward Ms. Aylwin's location.

Rescue workers nevertheless provided for the remote possibility that Ms. Aylwin was alive. The necessary supplies were in place to treat the victims, including treatment for crush injuries. If the individuals were discovered deceased, the coroner would be called in to do his investigation before the bodies were removed.

Mrs. Perizzolo's body was removed from the rubble shortly after 9:15 a.m. on June 27, after the coroner had pronounced her dead and identified her by using a family photo.

Chief Officer and Staff Insp. Neadles arranged to have two people from each of UCRT, HUSAR/TF3, and the Elliot Lake Fire Department remove Mrs. Perizzolo's body, as a type of honour guard. The same process would be followed with Ms. Aylwin.

A significant amount of work remained before the rescue workers were able to remove Ms. Aylwin's body from the rubble. Mr. Priestly suggested there was something in the order of 40 tonnes of debris yet to be cleared. Rescue workers were still not sure of her exact location, so dogs were used to narrow the focus. At 1:33 p.m., using chains and the Priestly equipment, the rescue workers were finally able to pull the slabs off Ms. Aylwin. She was pronounced dead, and her body was removed from the site.

Rescue workers searched and used dogs on the remainder of the pile to ensure there were no other victims. None were found. Chief Officer ended his incident command at 6:34 p.m. on June 27 and turned the scene over to the OPP. The premier visited Elliot Lake that afternoon. He met with close family members of the victims, rescue workers, and others. His statement to the media that day made it clear that he felt something needed to be done to address the lessons learned from this tragedy.

The victims: cause and time of death

Tragically, two people died as a result of the collapse of the Mall: Doloris Perizzolo was 74 years old, and Lucie Aylwin was 37. It appears very clear that Doloris Perizzolo died almost instantly after the collapse as a result of blunt-force injuries. It may be a small mercy that her death was quick.

Tragically, two people died as a result of the collapse of the Mall: Doloris Perizzolo was 74 years old, and Lucie Aylwin was 37.

The evidence does not allow as certain a conclusion about Lucie Aylwin. She probably lived for some time after the initial collapse until she died of crush asphyxia. I shall briefly explore my basis for reaching this conclusion, as it contradicted the opinion of the forensic pathologist.

Dr. Marc Bradford, the coroner at the scene of the collapse, observed that Ms. Aylwin was underneath a large slab of concrete, lying on her left-hand side, and with her hands curled just below her mouth, with a space around her face. She was located in a "void."

Dr. Martin Queen, a forensic pathologist at Health Sciences North in Sudbury, examined Ms. Aylwin's body. In the early morning of June 28, he could not find a definitive fatal injury but concluded the likely cause of death was asphyxia due to chest compression. He was skeptical of media reports of "signs of life" up to 48 hours after the collapse. He believed, instead, that the victim died very quickly, noting that her fingernails were totally intact and showed no signs of having attempted to "claw her way out." His later autopsy report concluded that the time of death was "most likely near-immediate."

I question the foundations of Dr. Queen's conclusion that death was near immediate. First, his autopsy report pointed to an absence of evidence of dehydration or hyperglycemia in vitreous (eye) fluids as evidence of a death close to the collapse, in conjunction with the fact that Ms. Aylwin was diabetic. There were problems with this analysis. Dr. Queen was not able in his testimony to point to any empirical evidence or medical literature to support his contention that low glucose levels assisted in determining the cause of death, nor was he able to point to evidence about the time it takes for dehydration to be apparent in bodily fluids. Instead, he relied on his "experience and belief," which I found to be a questionable approach.

In addition, I heard evidence that Ms. Aylwin may have had access to water while trapped, potentially enabling her to stave off dehydration. Dr. Queen's autopsy report noted that Ms. Aylwin's palms, when uncovered, were wrinkled, typical of skin exposed to a wet environment. This creasing indicated that she had been in water – and there was a great deal of water in the rubble pile from broken pipes, heavy rain during the rescue operation, and water being sprayed onto the pile for 28 minutes during the cutting of the hanging beam. In addition, Ms. Aylwin's hands were cupped near her mouth in a position that would have allowed her to drink.

Second, Dr. Queen cited the absence of inflammatory or reparative reaction on injuries sustained by Ms. Aylwin as evidence that she died quickly after the initial collapse. In short, her body did not have long to heal before death. Blood-cell analysis of the skin and tissue around injuries she sustained to her shin and left knee pointed to death anywhere from 30 minutes to a little more than three hours after the injuries were sustained. However, even if true, this conclusion left open the possibility that the injuries in question were sustained as a result not of the initial collapse but of a secondary shift or smaller collapse.

Third, Dr. Queen's opinion that Ms. Aylwin would have attempted to claw her way out if she had been alive was merely a "common sense" assertion on his part. It was not a conclusion that was, in any way, based on his particular area of expertise.

Dr. Queen gave these three points to support his conclusion that Ms. Aylwin's death was near immediate after the collapse of the Mall. In my view, however, each one of them is indecisive.

In addition, the nature of the injuries and the cause of Ms. Aylwin's death – crush asphyxia – did not provide definitive evidence about the time of death. Crush asphyxia results in a loss of oxygen which, in this case, was likely caused by an inability to move the ribcage and diaphragm and thereby move air in and out of the lungs. The increased pressure in the lungs may also have prohibited blood flow to the heart. Dr. Queen admitted that the crush asphyxia could have been caused by a secondary collapse or that the obstruction may have been partial, meaning that it took time before death ensued. The crushing effect could have occurred later or could have occurred gradually over time.

Ms. Aylwin suffered from broken bones in her chest as a result of her compression injury. However, the broken bones themselves did not cause her death, nor did the fractures assist in determining time of death.

I saw additional indications and heard evidence that Ms. Aylwin may have survived for a period of time after the collapse. One such sign was that blood on her right hand, which had likely leaked down from her nose and possibly another cut, looked "relatively fresh" to Dr. Queen. I also heard evidence from the HUSAR/TF3 team doctor that people trapped in structural collapses can survive for three days without water.

Most important, however, I heard witness evidence of "signs of life" from the time of collapse until 5:30 a.m. on June 25. If Dr. Queen's conclusion that Ms. Aylwin died very quickly was correct, by definition these signs of life would have all been mistaken. However, I found several of these signs of life to be quite credible and reliable, in particular the evidence from the search dogs.

The signs of life have already been discussed. Firefighters heard muffled noises and communication from the rubble pile in the first hours after the collapse. HUSAR/TF3 members heard tapping on June 24 at 9:30 a.m., in response to a call-out. It sounded to them like flesh hitting concrete. A search dog gave an indication of a live victim at noon on June 24, and another at 9:30 p.m. the same day. LifeLocator indications of breathing were found at midnight on June 24, although I have reason to doubt that this tool was used properly.

It was not until 5 a.m. on June 25 that a dog, Dare, gave an indication of a possible deceased person at the same approximate location. Another dog, Ranger, trained to indicate a live victim, gave no sign. The LifeLocator gave signs of breathing shortly after, but again it was not operated according to specifications.

The sounds, canine signs, and LifeLocator indications were all marked on photographs of the debris pile by the various witnesses. The marks were all within a few feet of each other, at the very location where Lucie Aylwin's body was eventually located.

Finally, Ms. Aylwin was eventually found in a void in the rubble pile. She was trapped and unable to move, but her upper back was not crushed and, if alive, there would have been space for her to breathe. I did not hear evidence of any shifting of the rubble pile in the first hours after the collapse, but there was evidence that the pile was settling and shifting as the hours passed, consistent with a later crush injury or gradual crush asphyxia over time. Two rescue workers described a slight vibration passing through the pile from south to north while the crane rigging work was being carried out, which was in the early hours of June 25.

Based on all the above, my conclusion is that Ms. Aylwin probably (although by no means certainly) survived for some period after the collapse, but that she had likely died by 5 a.m. on June 25, when Dare gave the indication of a possible dead victim. By this time, approximately 39 hours had passed after the initial collapse.

After-action reports, debriefings, and lessons learned

I was generally disappointed by the failure of several organizations and institutions to conduct proper debriefings and create after-action reports following the Elliot Lake rescue and recovery efforts.

- HUSAR/TF3 did not conduct a formal debriefing, despite the opportunity to do so immediately after the deployment. Nor did the team produce an after-action report. The team does not have an institutional history of conducting debriefings, but it was likely also motivated by a desire to avoid admitting possible mistakes and self-criticism to this Commission. An email to team members seeking feedback, sent by Capt. Comella, received only three responses.
- The City of Elliot Lake failed to hold a debriefing, despite a requirement to do so in its emergency response plan, and it failed to produce any type of after-action report. I heard evidence that a desire to avoid scrutiny by this Inquiry was a motivating factor.
- The Elliot Lake Fire Department failed to hold a debriefing session or to produce an after-action report, although it had done so in the past and its leaders recognized their utility. Fatigue and emotional reasons were given for this lapse.
- The Ministry of Community Safety and Correctional Services produced an after-action report, but not until a year after the events. The report may have been based on incomplete details about the rescue and recovery operations.
- Apart from its report on the cause of the collapse, which was extensive and comprehensive, the Ministry of Labour did not produce a stand-alone after-action report related to its involvement during the rescue and recovery operations.

By contrast, certain players took the time to debrief and produce after-action reports:

- UCRT held a debriefing session, although certain key players were not present. Sgt. Gillespie created a brief after-action report in early July 2012.
- The OPP's Field Support Bureau created a comprehensive after-action report covering the involvement of UCRT, East Algoma Detachment, and other OPP entities involved in the events following the collapse.
- The Office of the Fire Marshal created a comprehensive after-action report, which included suggestions for substantial change to Ontario's search and rescue model.

Through the debriefings that did occur and the after-action reports that were produced, along with questions put to witnesses during testimony, I did in the end receive some helpful input about the lessons learned from the Elliot Lake response and the areas for potential improvement. These suggestions included input from the victims' families, the Millennium Crane operator, and rank-and-file rescue workers, in addition to those in positions of command. I paid close attention to these suggestions and took them into account in crafting my recommendations. I also noted ongoing confusion, even from experienced individuals, about topics such as the Incident Management System command structure and doctrine and the role of the Ministry of Labour at a rescue or recovery operation. From a few others, I saw a reluctance to recognize errors and to accept change.

General conclusions

Experience is clearly the best teacher. To ensure that we do not repeat the mistakes of others but benefit from the knowledge of their successes and failures, we need to carefully document lessons learned and pass them along to our successors. In this way, we achieve excellence. If I point out what I think was less than ideal in the Elliot Lake rescue and recovery effort, it is only with a view to ensuring that things will be done better the next time around.

The time of death: Could a different or more rapid response have made a difference?

The answer to this question will have to be a vague "maybe" or an imprecise "perhaps." I know that response is unsatisfactory, but I cannot provide a better one. On all the evidence before me, I believe it probable (although by no means certain) that Lucie Aylwin survived the collapse for a period of up to 39 hours. In a sense, it is bitterly ironic to hope fervently that I am wrong and that her death occurred in a mercifully short time after she was buried in the rubble.

The speed of the response

Time was clearly of the essence. If a victim survives the initial trauma of the collapse and is trapped under the rubble, the chances of survival diminish as time advances.

The response of the Elliot Lake Fire Department was prompt and efficient. Chief Paul Officer rapidly activated the Community Control Group and contacted the Office of the Fire Marshal. He quickly requested assistance from HUSAR/TF3 when he realized the emergency was beyond his forces' capabilities. The City of Elliot Lake made a declaration of emergency in a timely fashion.

The OPP's UCRT speed of deployment was remarkable. In contrast, HUSAR/TF3 deployed six hours after receiving the order to do so, just within its mandated stand-up time. No one would disagree, however, that a shorter deployment time would, if achievable, be desirable. The evidence I heard convinces me that, with certain adjustments, HUSAR/TF3 deployment speed could be improved for future missions.

Deployment numbers could have been higher

HUSAR/TF3 deployed with barely half a full team and no planning section chief. The absence of this official had an effect on the lack of planning I observed during the mission.

UCRT deployed with less than half its available complement and lacked a staff sergeant as unit commander. This absence meant that an officer could not be in both the command tent and the hot zone at the same time, and, as a result, the team was in fact excluded from the chain of command.

That said, the lower HUSAR/TF3 and UCRT numbers did not cause the difficulties experienced during the rescue. The problem was not with the workers in the hot zone but with the poor dynamics of the command structure, misunderstandings about that structure, and a failure to implement the Incident Management System as designed.

The rescue operation

I conclude that the way in which the Elliot Lake rescue operation was carried out needs improvement in several areas.

I saw confusion about the command structure and a failure to adhere to and properly implement the Incident Management System. Pursuant to this system, it is crucial that an incident action plan be developed to provide clear direction. It should have been written for a complex incident such as the Mall collapse and developed at a planning meeting; it should then have been followed by an operations briefing to ensure that everyone was aware of the strategy. Along the way, the progress of the plan should have been documented and analyzed in order to conduct longer-range and contingency planning. Systematic shift-change briefings should have occurred.

Instead, no incident action plan was developed, except perhaps as a concept in the minds of the HUSAR/TF3 leadership. Formal briefings were almost non-existent throughout the mission. The first written action plan was produced not by anyone in the command structure but at the initiative of crane owner and operator Ryan Priestly, and not until the late afternoon of June 26.

On the operations front, cranes and rigging operations could have started sooner, and the utility of such operations should have been recognized by all the rescue teams.

On the operations front, cranes and rigging operations could have started sooner, and the utility of such operations should have been recognized by all the rescue teams. There was inexplicable delay in ordering the machinery from Millennium Crane. Within HUSAR/TF3, there was an ingrained reluctance and lack of training in using this resource. The rigging done with Millennium Crane constituted the only real progress in accessing the victims until the rescue was called off for safety reasons. HUSAR/TF3 "tunnelling" toward the rubble pile ultimately achieved very little.

The decision to use the Priestly equipment was a last-minute, fortuitous result of Premier McGuinty's intervention and the fact that one HUSAR/TF3 team member knew the owner and the capabilities of the Priestly equipment. Again, I would have expected equipment of this type to figure prominently in HUSAR/TF3's inventory of potential external resources. I hope, after this experience, it will in the future. Similarly, Ontario Mine Rescue was not considered or used, despite an offer of assistance.

HUSAR/TF3 command was clearly unaware of its depth of experience and expertise and refused to consider involving it, even when that organization itself had run out of ideas.

I saw little to no record-keeping or contemporaneous note-taking. This lack of documentation created difficulty for the Commission in re-creating an accurate narrative, but the true importance of such records lies in their instructional value for future responders.

From a communications perspective, the Elliot Lake deployment fell far short of the ideal. The responding organizations all operated on different radio frequencies. Communication with the victims' families was irregular and at times insensitively done. Lack of a well-structured communications strategy led to a real apprehension of civil unrest in Elliot Lake.

The rescue was called off too hastily and with inadequate consultation or consideration of other options. Someone was reported alive under the rubble at noon on June 25. Only hours later, a definitive end to the rescue was announced, even though key players had not yet been consulted. In the end, it was the intervention of the premier that forced rescue workers to consider a Plan B, even if it offered only a faint hope of saving a life.

I saw widespread and persistent confusion about the role and actions of the Ministry of Labour at the scene. The ministry never once issued an order preventing entry of rescue workers onto the collapse site, but the impression persisted that it had. In fact, ministry engineers and inspectors provided useful advice and assistance throughout the deployment and acted most responsibly. There was widespread confusion about the ministry's powers, which did in fact include the power to shut down the rescue scene in the interests of the rescue workers.

After the operation, I learned of poor debriefing practices from most organizations and the absence or delayed production of after-action reports. There were exceptions, but some of this poor response appeared to be motivated by a desire to avoid criticism and reproach.

When the rescue efforts stopped, it became evident that no statutory authority existed to make a building safe (by demolition, for example) in order to remove a body from within the structure.

General observations

In my view, the Ontario emergency response system, particularly in the area of urban search and rescue, is in need of an overhaul. Clearly, as a result of the cessation of federal financial support, there are serious funding issues. However, I also noted a disabling compartmentalization among the diversity of provincially available resources. HUSAR/TF3 is designed primarily to serve the Toronto area. UCRT belongs exclusively to the OPP. Ontario Mine Rescue operates independently and beyond the ken of many other organizations. Some cities have self-contained light and medium USAR teams, but with little to no provision for assistance to other communities. These silos must be broken down to create a less insular emergency response system.

In addition, given the sheer size of this province, steps must be taken to ensure urban search and rescue hubs in regions other than Ontario's south. An emergency similar to the one in Elliot Lake would present even greater logistical challenges if it occurred in Timmins, Kapuskasing, Hearst, or Kenora.

The Elliot Lake rescue effort will not be remembered in the annals of emergency management and response as a model to be emulated. But it will be of considerable utility going forward if it is considered a learning experience. True learning occurs through the honest recognition of error and the sincere determination to avoid its repetition. I was privileged, through the Commission process, to have met or learned of men and women of great sincerity, courage and strength of character who forthrightly admitted error and expressed their resolve to learn from that recognition. They are truly engaged on the road to excellence.

Inquiry Process

Every commission of inquiry hopes all its recommendations, in their entirety, will be implemented by governments and other public institutions. However, commissions have only the power to make recommendations. It is for others to decide which recommendations to implement and the timing and method of that implementation. There may be valid reasons for non-adoption, ranging from fiscal austerity imperatives to altered circumstances.

Nonetheless, I believe the residents of Ontario, and Elliot Lake in particular, have a right to know the extent to which governments and other public institutions will implement the recommendations and the reasons for any deferral or rejection. I also make several recommendations for changes to the inquiry process more generally.

A brief summary of my Part Two and Inquiry Process recommendations

In this section, supported by the lessons gleaned from the Algo Mall emergency response, I once again look ahead with recommendations for changes to policies, procedures, and practices.

Many of my proposals for Part Two require policy and attitudinal change rather than legislative and regulatory amendment. Many require collaboration with entities that are independent of government. More specifically, some of my recommendations are meant to provide more rapid provincial advisory assistance and support to smaller municipalities. Others deal with the underlying philosophy of the Incident Management System.

Many recommendations are aimed at making the emergency assistance process more efficient through better response times, assurance of adequate response personnel, training in different rescue techniques, enhanced communications and record-keeping, and adherence to and understanding of the Incident Management System through improved training. The recommendations also suggest looking at different approaches or models of emergency response in Ontario and elsewhere and at more effective synchronicity and co-operation among emergency response organizations. They also suggest a more sensitive and caring approach to victims and their families.

The Commission recognizes that funding has always been, and will always be, a valid concern to governments at all levels. The need for public security and safety requires the reinstatement of federal funding for HUSAR/TF3, in particular, considering its trans-border responsibilities. It seems unfair that provincial and municipal taxpayers should bear the entire burden of this valuable national asset.

Finally, these recommendations suggest improvements in the Commission process itself and urge a public accounting on the implementation of my recommendations.

Provincial organizations and capabilities

Recommendation 2.1

The capacity to respond to structural collapse emergencies should be increased in Ontario.

Recommendation 2.2

The provincial government and others should explore possible collaboration with Ontario Mine Rescue as a partial solution to ensure adequate province-wide capability to respond to structural collapses.

Recommendation 2.3

The province should initiate discussions to bring the medium urban search and rescue (USAR) teams that currently exist in Ottawa and Thunder Bay into the provincial inventory.

Recommendation 2.4

On request, the province should make incident support teams available to incident commanders.

Recommendation 2.5

The province should examine the model of a volunteer-based emergency response used by the German Federal Agency for Technical Relief (Technisches Hilfswerk, or THW) to determine if it could have any application in Ontario.

Recommendation 2.6

Statutory authority should give jurisdiction to a coroner to authorize entry to a building, by any safe means including demolition, for the purpose of retrieving a body.



Incident Management System / chain of command

Recommendation 2.7

Whenever a municipal or provincial emergency is declared, its management should contain the following mandatory features, each of which is reduced to writing:

- a clear chain of command;
- defined responsibility and accountability for all in the chain of command;
- a clear and consistent line of communication for all responders;
- a plan of action determined by the individual in charge after consultation; and
- an early and comprehensive briefing of all team members before the plan is carried out.

Recommendation 2.8

There should be only one person in overall charge of a response; a “unified command” structure should be avoided.

Recommendation 2.9

The incident commander, the senior person in the chain of command, in a municipally declared emergency should be either

- (a) the person in charge of the initial agency that responds, unless and until that person delegates that authority in writing to another person; or
- (b) the person in charge of an agency determined by a matrix that assigns responsibility before an incident on the basis of the agency most closely linked to the type of emergency at issue.

Recommendation 2.10

The province should put in place strategies that will increase the acceptance and actual use of the Incident Management System (IMS) – including simplifying its language and instituting joint training and exercises – so as to be able to make it mandatory in the near future.



Communications

Recommendation 2.11

Provincial media and communications expertise should be made available, either as a stand-alone service or as part of incident support teams, to municipalities during declared emergencies or where provincial resources have been used.

Recommendation 2.12

The Ontario government should make it mandatory to provide private space and regular updates to family members of victims on the progress of rescue and recovery operations during declared emergencies or where provincial resources have been used.

Recommendation 2.13

Training for rescue and recovery operations should stress providing the public with timely and accurate information about casualties and the progress of a rescue operation (subject to legitimate operational requirements).

Recommendation 2.14

Where multiple agencies are present at a rescue operation, they should have continuous access at the command level to common-frequency radios or communications equipment.

Recommendation 2.15

Specialized rescue workers must be trained to accept the need for contemporaneous record-keeping during an emergency response. To facilitate the process, waterproof notebooks should be provided and consideration should be given to the acquisition of hands-free recording technology.



HUSAR/TF3 (Heavy Urban Search and Rescue Task Force 3)

Recommendation 2.16

HUSAR/TF3 should conduct debriefings in a timely fashion following any deployment.

Recommendation 2.17

HUSAR/TF3 should create an after-action report in a timely fashion following any deployment. In the case of a provincial deployment, the after-action report should be submitted to the Office of the Fire Marshal and Emergency Management (OFMEM).

Recommendation 2.18

HUSAR/TF3 and UCRT (the OPP Urban Search and Rescue and Chemical, Biological, Radiological, Nuclear, and Explosive Response Team) should enter into a memorandum of understanding with each other that clearly sets out the command structure under which they will operate when jointly deployed.

Recommendation 2.19

HUSAR/TF3 should implement procedures to ensure that qualified section chiefs are available for deployment.

Recommendation 2.20

HUSAR/TF3 should implement procedures to reduce or eliminate the unpredictability of the size of the team it is able to muster following a call-out.

Recommendation 2.21

The HUSAR/TF3 site commander should be supplied with a scribe on all deployments.

Recommendation 2.22

HUSAR/TF3 should ensure that it has access to qualified drivers to transport the cache of equipment on deployment.

Recommendation 2.23

HUSAR/TF3 should explore additional sources for tractor rentals.

Recommendation 2.24

HUSAR/TF3 team members should receive training for rigging operations.

Recommendation 2.25

Standard operating procedure for HUSAR/TF3 should require fully documented incident planning, which is provided to supervisory personnel.

Recommendation 2.26

HUSAR/TF3 should receive adequate funding to ensure that it is properly equipped and trained to respond to structural collapses in a timely manner with sufficient personnel and expertise. The Joint Emergency Preparedness Program (JEPP) funding should be reinstated by the federal government.



UCRT (The OPP Urban Search and Rescue and Chemical, Biological, Radiological, Nuclear, and Explosive Response Team)

Recommendation 2.27

The OPP should implement a duty roster requiring

- (a) a minimum number of commanding officers who can serve in the command structure of an emergency response and represent UCRT therein; and
- (b) a sufficient number of commanders who can lead UCRT forces on the ground and be available to respond in a deployment.



Speed of response

Recommendation 2.28

There should be more training of HUSAR/TF3 and UCRT members on the utility and capability of cranes in rescue operations.

Recommendation 2.29

HUSAR/TF3 should send advance teams to a collapse site ahead of the full team.

Recommendation 2.30

The OPP (and all initial first responders) should forward as soon as possible to the deployed rescue team any photographs that have been taken of an emergency.

Recommendation 2.31

HUSAR/TF3 should mobilize and deploy with all practicable speed. Impediments to rapid deployment should be eliminated.



Ministry of Labour

Recommendation 2.32

Ontario should clarify the roles and responsibilities of Ministry of Labour inspectors and engineers at the scene of an ongoing rescue or recovery effort.

Recommendation 2.33

The Ministry of Labour should use section 21 committees to further ensure that first responders are knowledgeable about the role and authority of the ministry and how it compares and contrasts with their own responsibilities during an emergency.



Debriefings and after-action reports

Recommendation 2.34

Timely debriefings and after-action reports should be mandatory for all agencies and organizations involved in rescue and recovery operations where an emergency has been declared or where provincial resources have been called in to assist. The after-action reports should be shared among all agencies involved.



THE INQUIRY PROCESS

Recommendation 2.35

The Government of Ontario and other institutions identified in this Report should issue a public report within one year on their response to these recommendations and what steps, if any, they are taking to implement them.

Recommendation 2.36

The Ministry of the Attorney General should prepare and keep current a tool-kit of policies and relevant documents for newly appointed commissioners and administrative staff.

Recommendation 2.37

The Ministry of the Attorney General should appoint an independent assessment officer and pay the accounts of the Participants' lawyers as expeditiously as possible.

Recommendation 2.38

In imposing a deadline for the work of an inquiry, the Ministry of the Attorney General should consider a reasonable period for the set-up of the inquiry.



PHOTO: Peter Rehak