The Elliot Lake Inquiry
Lessons Learned

“Though it was rust that defeated the structure of the Algo Mall, the real story behind the collapse is one of human, not material, failure.”
(Paul R. Bélanger)

Presentation by Chris Roney, FEC, P.Eng.
to the Engineers Canada February 2015 Board Meeting

The Algo Centre Mall

- Built in 1979
- Called “Crowning Achievement for Elliot Lake”
- Mall & Hotel
- Rooftop Parking deck
The Collapse

Photo credit: OPP

The Collapse

Photo credit: OPP
Leaks, mould, corrosion

- Leakage problems started shortly after opening
- Numerous band-aid patches
- None were effective
- None addressed the root problem

Engineering Reports

- First in 1991
  - Investigate water problems
  - Propose solutions
  - Investigate the effect of the leakage on the structure
  - Leaks doubled between 1991 and 1994
Numerous engineering reports over the years
- “no evidence of structural distress or deterioration”
- “corrosion evident, but not of concern”
- “no evidence of deterioration compromising the integrity of the structure”

Last Engineering investigation before the collapse
- Inspection: April 12, 2012
- Report: May 3, 2012
All beams inspected had little loss of section and we would consider the members still structurally sound. The ongoing leakage from the parking deck is of particular concern in the areas of Zellers, and the expansion joint located within the south wall of the area in question.

It is our opinion that the observed raising at this time has not detrimentally changed the load carrying capacities of the structure, and no visual signs of structural distress were observed.

Elliot Lake: How could so many engineers be so wrong?
Engineering Reports

Deadly Elliot Lake mall collapse was a failure of the 'engineering profession of Ontario,' Inquiry hears

Elliot Lake Inquiry

Mandate

- Inquire into and report on events
  - surrounding the collapse
  - The deaths & injuries
  - Emergency management & response
  - Prepare recommendations
PEO’s Role at the Inquiry

- Standing
  - Participate in hearings
  - Participate in examining witnesses
  - Provide evidence concerning the engineers involved with the mall
  - Provide evidence concerning the regulation of engineering in Ontario

- Standing
  - Make written and oral submissions to the Inquiry
PEO’s Role at the Inquiry

- **Standing**
  - Make written and oral submissions to the Inquiry

- **Not PEO’s role:**
  - Engineering evidence
  - Opinions on technical matters

Key Themes from the Inquiry

- **Transparency**
  - Inquiry heard from many witnesses that they were unaware of the discipline history of the engineers involved.
  - Information was not readily to the public
Key Themes from the Inquiry

- Standards and Guidelines
  - No legally binding standards for engineering inspections of existing buildings
  - Scope of investigations
    - Dictated by clients
    - Budget limitations
    - Presence of finishes concealing the structure
    - Not clearly articulated in the reports
    - Pressure by clients to alter reports
Key Themes from the Inquiry

Availabilty of Past Reports
- Previous reports not passed on
- Reports not provided to Municipality
- Witnesses: had they known of previous findings.....

Key Themes from the Inquiry

Competence and Qualifications
- No constraints on the areas in which a licensee may practice
- Engineers free to self-determine and self-declare their area of expertise & competence
- No requirement for continuing education
Key Themes from the Inquiry

- Practicing while suspended
  - Nothing prevents this
  - Just need another P.Eng. to sign off
  - Does this really meet the intention of a suspension?

PEO’s Recommendations

- 11 recommendations
  - Structural review of existing buildings
  - Availability of Reports
  - Public Access to Licensing & Discipline information
  - Specialist Certification
  - Supervision of the Work of Others
Inquiry Roundtables

Three Roundtables
1. Increasing Public Safety
2. Improved sharing of reports & information
3. Role of Professionals & other building consultants

Report of the Elliot Lake Commission of Inquiry
Report of the Elliot Lake Commission of Inquiry

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

PEO’s Key Media Messages

• Acted immediately to learn from this tragedy and to make the necessary changes to make sure it doesn’t happen again.
• Began immediate investigation into the actions of the engineers involved
• Participated in the Inquiry
• Almost all of our 11 recommendations were endorsed
• We’ve already acted to make the necessary changes
• We need the concurrence of the Government
Conclusion

“In the end, a reputation is something that is earned by one's actions. Though the engineering profession's reputation was certainly tainted by the events leading up to the collapse, I strongly believe that PEO's strong and swift actions in response to this tragedy are something to be proud of.”