

## STRUCTURAL DETERIORATION OF EXISTING STRUCTURES AND PRACTITIONERS' PROFESSIONAL OBLIGATIONS

By Sally Thompson, P.Eng.

The collapse of the Champlain Towers South condo in Surfside, FL, earlier this year should serve as a reminder to all practitioners involved in building evaluations and reserve fund studies of their professional responsibilities to the welfare of the public. According to media reports, several engineering reports had been provided to the condo corporation notifying it of the need to complete structural repairs to the garage and balconies, as well as other repairs such as roof work, mechanical, electrical and life safety systems. However, three years later, when the building collapsed, the recommended work had, in large part, not been completed.

We do not yet know what efforts the engineer who provided the structural report made to motivate the condo corporation to complete the required work. The building was governed by a volunteer board, and when it received the recommendations, there was not enough money in the reserve fund to cover the related costs. The board that first attempted to implement the work eventually resigned and was replaced by a new board. A couple of years later, that board initiated a special assessment to collect the required funds to cover the costs.

The story, other than the collapse itself, is not unfamiliar to those who work with condo corporations, and the pattern plays out quite frequently in Ontario. Condo boards seeking to implement special assessments to cover required work are often removed via a requisition meeting. The new board often starts fresh, firing the management, engineers, reserve fund study providers and lawyers serving the corporation. While this might seem reasonable from the perspective of the individuals seeking to avoid what they see as an unreasonable special assessment, it often introduces a delay of several years between the practitioner's first recommendation that work be completed and the start of related work. When the repairs are structurally significant, these delays represent an immediate hazard—or, if left, may become structurally significant. This delay puts practitioners in a difficult situation.

### WHAT PRACTITIONERS SHOULD DO

Practitioners must regard their duty to public welfare as paramount, as per PEO's Code of Ethics in section 77 of the *Professional Engineers Act*. During a building condition evaluation or reserve fund study site visit, even though they are not complet-

ing a full structural condition assessment, a practitioner may observe conditions they believe to be structurally significant or imminently hazardous. Their first course of action should be to have a structural evaluation completed to confirm their concerns and then promptly have immediate safety risks addressed. This might mean working with the client to have a contractor visit the site within days to implement required work or arranging for the installation of temporary shoring. But often, deterioration is structurally significant and in need of repair in the next few years but not at risk of immediate failure. With time, the building may degrade further, increasing risk of failure. Here, the practitioner is put in a more difficult position. Further evaluation may be needed. Ideally, the building owner will engage them or others to complete required evaluation and design-required repairs, which can be implemented in a reasonable timeframe.

But what happens if the building owner refuses to complete further evaluation or make repairs? Or the condo board gets removed and the practitioner is not re-hired by the new board? The practitioner is no longer being engaged or paid to do work, but what obligations do they still have? Public welfare remains their obligation. The practitioner should reach out to the building owner, property manager or new condo board and notify them of their serious concerns related to the building. They should request confirmation that another professional engineer has been engaged to provide a second opinion and/or take responsibility for the deteriorated building components, and then follow up with that engineer to confirm their engagement. If they do not receive a response from the owner and a duty to warn is established due to imminent safety risk to the public, their next course of action should be to notify the jurisdiction's municipal authority of their concerns so the municipality can take appropriate action.



**FORTUNATELY, MANY BUILDINGS ARE REVIEWED BY ENGINEERS, WHETHER AS PART OF THE PREPARATION OF A RESERVE FUND STUDY FOR A CONDOMINIUM, OR DURING A BUILDING CONDITION EVALUATION, OFTEN TIED TO A PURCHASE, SALE OR REFINANCING OF A BUILDING. WHILE THESE REVIEWS DO NOT TYPICALLY INCLUDE A FULL STRUCTURAL ASSESSMENT, THEY OFTEN PROVIDE ENOUGH ACCESS THAT SERIOUS STRUCTURAL DETERIORATION, OR SIGNS THEREOF, CAN BE OBSERVED.**

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#### **DOING THE RIGHT THING IN CHALLENGING CIRCUMSTANCES**

Some building condition evaluations are completed on behalf of a potential purchaser of a building, not the building owner. In this case, navigating structural deterioration or hazardous conditions becomes even more challenging because the engineering contract is not with the building owner. The practitioner may advise their client not to purchase the building due to the degradation or risks but must still manage their obligation to public welfare. In the case of imminent safety risk to the public, this will mean reaching out to the building owner, if possible, or the municipality to ensure they are aware of the seriousness of the concerns.

Pursuing discussions with a building owner about required repairs or contacting municipal authorities can also have a negative business impact on the practitioner's firm because these actions may aggravate their clients by damaging the client's corporate relationships. For example, your client may not choose to buy that deteriorated building from the current owner but might not want to be shut out from other purchasing opportunities with the same owner because their engineer caused the owner a significant headache. Despite the business risk, the practitioner must persist in doing the right thing. In these cases, it may be best to work through the client to contact the building owner so they can help manage the message. But the message must get through.

Currently, in Ontario, there is no requirement for a general engineering evaluation of buildings after construction, like the 40-year recertification process in certain counties in Florida. After the Algo Centre Mall collapse in Elliot Lake, ON, the Building Safety Technical Advisory Panel recommended that the Ministry of Municipal Affairs and Housing (MMAH), which oversees the Ontario Building Code, implement mandatory risk screening of buildings with mandatory Structural Adequacy Assessments to be completed periodically every six or 12 years for high- or medium-risk buildings. These recommendations have not been implemented.

Fortunately, many buildings are reviewed by engineers, whether as part of the preparation of a reserve fund study for a condo or during a building condition evaluation, often tied to a purchase, sale or refinancing of a building. While these reviews do not typically include a full structural assessment, they often provide enough access that serious structural deterioration, or signs thereof, can be observed.

#### **THE RISKS OF CONCEALED DETERIORATION**

The above suggestions apply well to deterioration that is clearly structurally significant or visibly hazardous conditions that might reasonably be detected via the visual review completed for most building condition evaluations. Examples might include reinforced-concrete-framed parking garages with extensive concrete delamination. By their nature, these structures are exposed to view, so the deterioration may be readily evident. But in many cases, deterioration is concealed by finishes or are otherwise not immediately obvious. For example, the mall at Elliot Lake had parking on top of a steel-framed building. Practitioners reviewing the building knew of the leakage and understood the risk of salty water accessing steel connections but could not readily see the connections because they were covered by ceilings. Engineers who reviewed the building many years before its failure pointed out the related risks and recommended structural assessments that the building owner never completed.

Practitioners completing building evaluations ought to be reasonably aware of concealed structural details that might require periodic review due to their risk profile. Examples would be steel framing under parking, like at Elliot Lake, but would also include post-tensioned structures; steel-framed or wood-framed balconies with soffit finishes that prevent visual review of the connections; high-rise header-brick walls with no horizontal control joints; or buildings constructed with autoclaved, aerated concrete slabs.

The expectation here is reasonable competence, not perfection. In the author's opinion, it is also not reasonable to expect practitioners to track all conditions seen in buildings that, left unattended for decades, might eventually result in failure. The practitioner has no practical ability to force a negligent building owner to complete and pay for an assessment they choose not to do. The best solution to this conundrum is for the MMAH to make periodic structural assessments mandatory for medium- and high-risk buildings, like Quebec's mandatory in-depth verification reports for parking structures.

### THE CASE OF HIGH-RISK CONDOS

Currently, the *Condominium Act* allows a wide range of individuals to prepare reserve fund studies. In PEO's new *Guideline for Engineers Conducting Performance Audits and Reserve Fund Studies*, the Professional Standards Committee takes the position that, under certain circumstances, reserve fund studies require professional engineering services. This includes studies for buildings over four storeys in height; buildings with suspended structural slabs that support parking, driveways or landscaping; buildings with balconies (other than wood balconies that are fully exposed on the soffit); and post-tensioned or other high-risk structures. Consequently, condo boards should be aware that higher-risk condos may have to be reviewed by an engineer at least once every six years. As part of those reviews, the practitioner may make recommendations for periodic in-depth structural assessments and, if the need arises, can help the building owner manage immediate and developing structural deterioration and hazardous conditions.

Our duty to public welfare sometimes puts us in the position of having to follow-up on problems, which rightfully feel like they

belong to someone else. Usually, the building owner is glad to have learned about the concerns so they can be addressed. Occasionally, however, this requirement to ensure public welfare is paramount may harm our own businesses by making our clients think we are being too detail-oriented or risk-averse or simply by costing us in unpaid labour. But the safety of the public should always come ahead of business priorities so we can do our part to help avoid catastrophes like the one that befell Champlain Towers South. **e**

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PEO Scarborough Chapter 2022 Annual General Meeting  
Saturday, January 22, 2022, from 9 a.m. to 12 p.m. EST  
[www.eventbrite.ca/o/peo-scarborough-chapter-28802055901](http://www.eventbrite.ca/o/peo-scarborough-chapter-28802055901)

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Wednesday, January 26, 2022 from 7 p.m. to 9 p.m. EST  
[www.eventbrite.ca/o/peo-etobicoke-chapter-28909639753](http://www.eventbrite.ca/o/peo-etobicoke-chapter-28909639753)

PEO Grand River Chapter 2022 Annual General Meeting  
Tuesday, February 8, 2022, from 7 p.m. to 9 p.m. EST  
Bingemans Conference Centre, 425 Bingemans Centre Drive, Kitchener, ON  
[www.eventbrite.ca/o/peo-grand-river-chapter-28899318003](http://www.eventbrite.ca/o/peo-grand-river-chapter-28899318003)