Caskanette Udall
CONSULTING ENGINEERS

FORENSIC ENGINEERING NEWS AND VIEWS

Season's Greetings

As another year comes to a close, we appreciate your business which has allowed us to grow significantly in 2009. With the growth of our environmental work and the addition of Micheka, our newest engineer, and Gail, our office manager, we have evolved into a multi-disciplinary firm, able to handle all of your forensic needs. Thank you for your continued support.

Holiday Hours: Although we are closed December 25 to 28 and January 1, in the event of an emergency please call us, our phones will be answered.

From all of us to you, we hope that the holiday season finds you and yours well and we look forward to working with you in 2010.

Court of Appeal Rules in Our Favour

The Professional Engineers of Ontario (PEO) are a self regulating profession, with the mandate to protect the public from engineering incompetence which could cause harm. I'm sure you have all heard about South Korean building collapses and various bridge collapses attributed to engineering errors. Ontario engineers are some of the best trained and most trust worthy in the world, thanks in part to the PEO governance.

As a self regulated profession, the PEO has a discipline group to deal with public complaints about members. Some of you are aware that a competitor complained about one of our reports back in 2004, and it has slowly been making its way through the process. It was finally resolved by the Court of Appeal in August this year, with the complaint being found to have no merits. The judges found no evidence of unprofessional conduct.

The PEO discipline process has some flaws, with public safety being the benefactor and the members being disadvantaged throughout the process. This does ensure that the mandate of protecting the public is achieved but at great cost to members accused of misconduct or incompetence. The PEO is reviewing the process and it is improving.

Our firm suffered under 5 ½ years of exposure to this process on a case which had no merit from the start. We thank our clients who remained faithful to us during our ordeal. The black cloud of uncertainty is harmful to the reputation of a forensic firm in particular, where the credentials of an expert at trial are a prime consideration when retaining an expert. Our track record in this area is exceptional and remains unblemished.

We are very happy to have put this complaint to rest, and wanted to share the good news with our clients. Anyone interested in the details of the court decision can contact us for a copy of the written decision.

As I approach my 30th year as an engineer, I can assure you that my experience is unmatched in this industry. When you are looking for reliable forensic engineering services our firm can be counted on to get the job done quickly, get you the right answers to your questions, and support our opinions in court when necessary.

Ontario Building Code Investigations

By Micheka Caskanette

Our company investigates several different issues that relate to the Ontario Building Code (OBC). These cases include structural damage due to fire, wind (including tornados), water, vibration, etc., in addition to general compliance issues that result in personal injuries (e.g. stair cases).

The first part of an investigation is to determine what type of building it is classified as in the OBC. Part 9 buildings are residential or small buildings (e.g. office building, store, small hotel/motel, etc). The general rule is that Part 9 buildings must be no more than 600 m2 in area and no more than three storeys tall. However, there are some exemptions, so a building fitting both of these criteria may not necessarily be a Part 9 building.

Part 9 buildings can be built by any qualified individual and are prescriptive in nature. The OBC provides tables to assist in determining the proper design. However, when there is damage to a building, it is generally necessary that an engineer examine the structure to determine structural stability and prepare a scope of repair.

If the building is not a Part 9 building, then it becomes a Part 3 building and requires an engineer or architect to complete the design. Because of its more complex nature, much more calculation and analysis is required during design or re-design.

Part 11 of the OBC discusses renovations to existing buildings. If only a small portion of the building is damaged by an event, then this section of the Code discusses whether the damaged areas can be rebuilt as they were prior to the loss, or if the repairs must be redesigned to conform to the current OBC requirements. The determination of "small" is left to the discretion of the Building Department and/or engineer.

Worth noting, is that Part 11 does not cover foundations of buildings. Reusing foundations is discussed in Part 4, and states that an existing foundation must meet the requirements of a new foundation before it can be rebuilt on. We are regularly asked at large loss fires if the foundation can be rebuilt on if they tear down the building above foundation level. We can comment on if the foundation has been damaged or not, but the Building Department may require additional testing (e.g. soils testing) be undertaken prior to rebuilding on that foundation.

Another common question from clients is with respect to building permits. The question of when a building permit is required is difficult to answer, and is largely dependent on the municipality. Some municipalities may require a building permit to sister three charred wall studs, and some may not.

Determining if a building permit is necessary and obtaining one when required is the responsibility of the home owner, or their representative (usually a contractor). We can obtain the building permit on their behalf, if requested by our client. This is not something that we regularly take on, for various reasons discussed below.

Our client is typically the insurance company, rather than the homeowner. If we are also representing the homeowner as their representative for the building permit, this could result in conflict of interest if there is disagreement between the two parties.

Typically, we will attend at the site initially and prepare a scope of repair for a building. Part 9 buildings do not typically require a completion inspection by the engineer, unless otherwise requested by the Building Department.

If we prepare a scope of repair for a building that is not a Part 9 building, we are legally obligated to conduct an inspection after construction is complete, to ensure it was done according to our scope. We are only responsible for ensuring that they completed the work that we required, and are not responsible for any other work.

The person that applies for the building permit is essentially taking responsibility of all the construction work at that site. If we apply to get the building permit, then we will be required to regularly go out to the site during construction and after construction. We will also be responsible for signing off on all the work that has been done at the site, not only the structural parts that we scope. Typically, a contractor or the homeowner will apply for the permit. They are already on site the majority of the time and do not need to make a special trip for these inspections. This results in substantial monetary savings to insurance companies.

We are asked to produce drawings as part of our report for an increasing number of our structural damage files. It is crucial that the insurer tell us what type of drawings they require, prior to our undertaking to prepare these drawings. There are two basic types that we prepare.

In several instances, we are preparing the drawings for estimating purposes. The insurance companies want to know what is required to put the building back to its pre-loss condition to determine what the payout should be. These drawings do not require design analysis to bring a building up to Code where necessary, which means they are cheaper and quicker to produce. These drawings may not be sufficient to apply for a building permit. However, they can be modified at a later date to incorporate the necessary details to be used for the permitting process.

In other cases, we are preparing the drawings for a building permit. This may require that the building be brought up to Code, and generally requires additional time to consult with the local Building Department to determine what Code upgrades they are requiring, and additional time to redesign the building so that it incorporates the required Code upgrades. These drawings and analysis take longer to complete and are therefore more costly to the insurer.

Sewer Backups, Bacteria & Mould

By Bob Caskanette

Remediation of buildings affected by sewer backups can be a special challenge, since large numbers of buildings can be affected by a single storm incident. Building restoration following a sewer backup or any water loss should occur quickly to remove excess water and address affected building materials. The work should be completed by a certified professional restoration contractor, but these firms are stretched to their limits by major incidents with multiple sites to attend.

Mould growth can occur in as little as 48 hours time following the water loss, provided moisture and humidity conditions are appropriate. If a consultant is brought in immediately following a loss, mould sampling can be done to determine if pre-existing mould growth already exists in the home. This information can save considerable money on the remediation project for the insurance company. While there is no laboratory test available to tell you the exact age of mould, a fast response time for air sampling following the loss, along with our site observations can often provide answers as to when the mould growth began and the sources of moisture responsible.

If certain mould species are identified in a timeframe that is not consistent with their required growth phase, this can indicate it is a pre-existing condition. We work with contractors and insurance companies to respond to claims immediately to conduct a detailed assessment. Yes, we do work weekends and evenings when necessary. There can be problems if there are delays in the claim being reported, which may make the analysis more difficult. However, some mould species require 7 days to establish, so the window of opportunity may be larger in some cases.

While mould growth can be a major problem following a water loss, people often forget about potentially harmful pathogens left behind on surfaces contacted by the Category 3 water (such as sewage). Health effects to those exposed can be devastating as witnessed by past events of E.Coli exposure through drinking water. The highest risk occurs in children, the elderly and immune compromised individuals, as their bodies cannot fight the bacteria as well if they are exposed.

Many pathogens can be found in Category 3 water, including harmful bacteria and viruses. The bacteria of concern in sewage is primarily gram negative bacteria such as E.Coli, Pseudomonas, Shigella and Salmonella, which can be transmitted from hand to mouth contact. Children often make the basement a play area, the elderly may have an in-law suite in a basement, which is where sewer backups typically effect. Kids being kids will put their hands on everything and increase their chances of contracting harmful pathogens if the surfaces have not been properly cleaned and sanitized, or even sterilized. Restoration contractors use a number of products to clean and sanitize surfaces contacted by sewage water, but mistakes do happen and areas can be missed. Alcohol based sterilizers are some of the best products to use on affected materials as it will kill essentially any bacterial related pathogen it comes across on contact.

Bacterial swabs can be collected from surfaces and finish materials, or even contents following cleaning to assess the effectiveness of the treatment and identify if harmful gram negative bacteria (such as fecal coliforms) are present. Contents can be evaluated to determine whether they can or cannot be effectively cleaned and if so if the cleaning was successfully done by the contractor. The swabs are collected and sent to a special bacterial laboratory where they are cultured for approximately 24 hours and analyzed to identify what coliforms are present, if any.

This type of analysis is very cost effective and can be done in conjunction with mould clearance testing (if applicable) or can be done separately at the end of a project not involving mould abatement, prior to residents re-occupying the area. These simple steps will put the homeowners at ease and eliminate potential liability for insurance companies and restoration contractors, knowing that there are no biological threats remaining in the home following the restoration work.

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Property Claims Services

Caskanette Udall Consulting Engineers- One Stop Shopping

By Jeff Udall

Our company can provide a wide range of services to meet your needs. From fire cause and origin investigation, emergency structural services, hazardous substance surveys during tear out or demolition, to creating rebuild drawings, we offer a full line of expert engineering services for your property claims.

A fire starts in a two storey farm house. The fire department manages to extinguish the blaze, but not before there is significant damage to the roof and one of the load bearing walls. We are called in to first assess the integrity of the structure to ensure it is safe to enter, and then to determine the cause of the fire. One of our structural engineers goes in and identifies an area of the second floor that requires temporary shoring to prevent collapse of the floor. They instruct the emergency contractor on what to do to make the building safe to enter. One of our certified fire investigators then goes in and determines that the fire resulted from an electrical arc in a light fixture that was recently installed. There may be potential for subrogation so the light is removed from site for further investigation. Due to the age of the house, it is suspected that there may be some hazardous substances in the building materials that should be carefully dealt with. Our environmental specialist enters and surveys the house, and takes samples as required for testing. Tests come back that there is lead based paint on the walls and some asbestos tiles in the front hall. An abatement protocol is developed to instruct the contractor how to safely remove and dispose of these hazardous substances. Our structural engineer returns after the contractor has removed the contents of the house and removed the affected interior finishes. The scope of repair is identified and measurements are taken so that reconstruction drawings can be created. Construction of the house starts and our engineer will return as required to sign off on the framing work that is being done to satisfy the municipal building inspector. The house is rebuilt and the claim was dealt with in an efficient and safe manner.

This example illustrates several areas where a standard fire claim could have resulted in injuries, environmental contamination, and extensive financial loss to the insurance company. Our experts identified these key aspects of the loss and acted quickly to ensure the interest of our client and the general public are protected. We deal extensively with property claims in our line of services. We have the expertise and experience you need to manage the claim from emergency work up front, through to the reconstruction.

If you have any questions about our property services, or any of our other services, call our offices any time.

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