

SPECIAL FEATURE

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SKILLS TRAINING & CONTINUING EDUCATION

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Simulator helps develop crane tandem lift skills



CM LABS

CM Labs, developer of Vortex simulators, has created a new crane simulator training program to help with heavy tandem crane lift training.

GRANT CAMERON
CORRESPONDENT

Novice crane operators as well as those with years of experience can now practise the tricky art of making heavy tandem lifts in a safe and virtual environment thanks to an innovative new mobile crane simulator training pack developed by CM Labs, developer of Vortex simulators.

The training pack was developed by the Montreal-based company in response to stakeholder demand and features the industry's only simulated mobile crane tandem lift exercise, along with a competency demonstration exercise that provides a sound, objective tool for employers to assess crane operator skills. The tandem lift exercise teaches the lead crane operator how to safely and efficiently manoeuvre a steel pipe load in tandem with a secondary crane, operated from another simulator connected on the network.

"Miscommunication is one of the most important contributors to accidents on the worksite," explains David Clark, product marketing manager at CM Labs. "That's why teamwork should be a centerpiece of any operator training."

"The mobile crane tandem-lift exercise teaches operators how to communicate for efficient and safe lifting operations. This type of team-based training can be expensive and difficult to reproduce in real-life but is safe and easy to set up with Vortex simulators."

Tandem lifts are often conducted in the field, but it's difficult to train apprentices on such manoeuvres because of the danger. The scenario will enable students to practise such exercises in a safe environment.

"In addition to the costs and logistical challenges that setting up the exercise represent, working in tandem multiplies the risks of accidents in the field," explains Clark. "Operating the mobile crane in inappropriate ways can cause the equipment to tip and has important repercussions on both operators and their equipment."

The training pack will allow trainees to practise without fear of injuring their co-workers or themselves, or damaging the equipment, he says. The tandem-lift feature can be deployed in multiple configurations, with operators working at any combination of CM Labs simulators. Collaborative learning can be further extended with CM Labs' signal-person training station, which allows a trainee to guide the operation within a challenging virtual jobsite with power lines and jobsite personnel.

The training pack covers the entire lift process, from lift plans to controls familiarization to complex lifts, such as lifting steel structures, working in buildings, and working around power lines. It also allows trainers to fully evaluate operator readiness with an innovative assessment exercise. The exercise is the only simulation-based assessment tool to cover advanced lifting techniques, such as performing a blind lift, recovering from a load pendulum, girder lifts, and more.

It provides in-depth assessment capabilities and progressive learning exercises for training centres that train apprentice operators as part of their curriculum. Companies can use the simulation for every stage of their workforce development cycle, from operator assessment and training to cross-skilling.

The system tracks all operating metrics during training exercises and rolls them up into a single score that updates in real time. Some of the metrics tracked include time spent in pendulums, the amount of time it takes to complete a task, rough load handling, load or hook collisions, load dragging, time spent in alarm conditions and contact with power lines.

Organizations can customize the scoring system to take their most important operating criteria into consideration. This, in turn, gives instructors a benchmark for objectively assessing operators after every training session in order to meet training objectives more rapidly.

Clark says the training pack is a "complete training tool," as it considers all types of scenarios in a lift. He notes that fatalities and injuries by electrocution are a major concern for construction companies and it's therefore important that operators also be trained to work around power lines.

"While trainers can't currently add in buildings, they can toggle power lines on or off for the worksite, making the exercise more challenging," says Clark.

All the company's training packs include technology with proprietary and patented algorithms validated by subject matter experts from John Deere, Manitowoc, the International Union of Operating Engineers, the Operating Engineers Training Institute of Ontario and other leading organizations.

The simulators are built on a high-fidelity, real-time physics engine and have technology that includes a mechanical engineering layer with multi-body constraints, transmission, tire models, cables, and other real-time simulation features that are unique on the market.

"That's why it delivers the most transferable operator skills anywhere, outside of the real equipment," says Clark.

CM Labs, which has more than 1,000 simulators in 30 countries, making it the largest simulator vendor in the market, has other projects in the works, he notes, to make simulation-based training as realistic and immersive as possible, while making sure that skills are transferable to the real equipment.

"We are always developing new equipment training packs and new hardware, continually investing in research and development, and exploring new technologies and ways of improving operator training," he says.

Economic Snapshot

Rise in consumer insolvencies raises a warning flag for creditors



John Clinkard

Over the past year and a half, consumer insolvencies for the country as a whole have been trending higher despite the fact that Canada's unemployment rate is close to the lowest it has been in almost fifty years, due to exceptionally strong employment growth.

Year-to-date (September) consumer insolvencies totalled 102,000, up 9.3% compared to the same period a year earlier. This relatively recent acceleration in consumer insolvencies is at odds with the recent trend in business insolvencies which has been trending steadily lower over the past eight years, despite the relatively fast growth of business credit. This divergence suggests that consumers are experiencing significantly more financial stress than are businesses.

A recent article in the *Globe and Mail* highlighted how several measures of consumer financial health have deteriorated over the past several years. First, fueled by a steady increase in both mortgage (+14.1%) and non-mortgage (+14.1%) borrowing, total interest paid by households in Canada has increased by 32% over the past three years. Reflecting this rise in interest payments, the debt-service-ratio, the percent of household income used to carry outstanding debt, now stands at 14.9 per-cent, its highest level in almost thirty years. Although consumer loan rates have moved up slightly over the past few quarters, the major contributor to the increase in the debt-service-ratio has been the growth of consumer borrowing.

Across the country, consumer insolvencies have exhibited double-digit percentage increases in Newfoundland and Labrador (+17%), Alberta (+15.1%), Manitoba (+13.5%) and New Brunswick (+10.4%). It is worth noting that consumer insolvencies exhibited an above (national) average increase of +15.3% in Ontario despite the province's strong economic fundamentals and the well below national average consumer debt delinquency rate Equifax Canada reported for Q1/19. This apparent inconsistency appears to have been due, in large part, to the exceptionally strong growth of population in the province over the past year and a half. The higher rates of growth of insolvencies in the other provinces noted above are consistent with their higher delinquency rates and the fact that their unemployment rates are above the national average.

The rise in consumer insolvencies since mid-2018 provides clear evidence that consumers' financial health has deteriorated due to their persisting excessive reliance on credit. Faced with a gradual uptrend in variable rate mortgage rates since mid-2018, there is also evidence that more highly leveraged homeowners are falling behind in their mortgage payments. According to Equifax Canada, mortgage delinquencies for the country were up by 4.1%/y in Q1/2019. However, both Equifax and the Canadian Bankers Association (CBA) report that delinquencies and the percentage of mortgages more than 90 days in arrear

remain at very low levels. According to the CBA, mortgage arrears in July stood at 0.23%, their lowest print in 29 years. Across the country, mortgage arrears are well below the national average in Ontario (0.09%) and British Columbia (0.14%) and above it in the Atlantic Provinces (0.45%), Manitoba (0.35%), Saskatchewan (0.85%), Alberta (0.50%) and Quebec (0.28%).

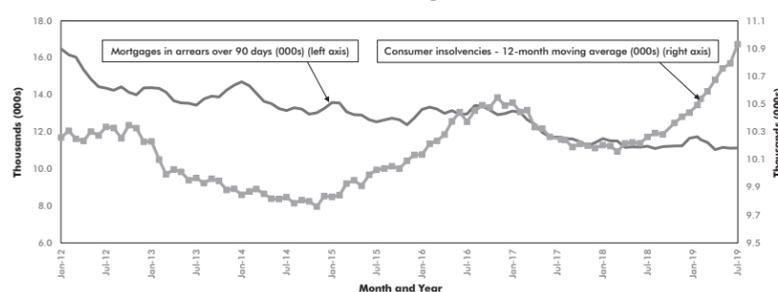
While many attribute the increase in insolvency to the very strong growth of debt service costs accompanied by subpar growth of wages, there is one factor which is frequently overlooked, i.e. taxes. According to the Fraser Institute's *Canadian Consumer Tax Index*, which tracks the total tax bill of the average Canadian Family, the average Canadian family total tax bill increased by 4.3% last year, well ahead of the 3.5% increase in their average cash income. Indeed, over the past four years, the average Canadian family's tax bill has risen by 11.9% while their income rose by 8.5%.

Looking forward, the fact that consumers are carrying very high levels of debt, coupled with their recent pattern of exceptionally low savings suggests that they are much more vulnerable to the effects of a loss of employment and/or an interest rate shock than they have been in the past. Having said this, a number of recent developments point to slower growth of insolvencies over the medium term.

First, full-time employment has exhibited strong (above 2% y/y) growth over the past five months that has been accompanied by the fastest year-over-year gains in weekly wages (October) since mid-2018. Second, over the past year, the growth of consumer credit has trended gradually lower and is currently (October) 2.9% y/y, its lowest rate of increase since mid-2016. Third, following the introduction of the mortgage stress test in 2018, borrowers had to jump a higher hurdle to qualify for a mortgage and are less likely to default in the event of an increase in mortgage rates.

John Clinkard has over 35 years' experience as an economist in international, national and regional research and analysis with leading financial institutions and media outlets in Canada.

Consumer insolvencies and mortgages more than 90 days in arrear



Data Source: Canadian Bankers Assn and Innovation, Science and Economic Development Canada.
Chart: ConstructConnect - CanaData.

Appetite for adjudication training strong in Ontario: Experts

DAN O'REILLY
CORRESPONDENT

Judging by the number of participants at a two-day training session held in Toronto in September, there is considerable interest and enthusiasm for Ontario's adjudication system which came into effect on Oct. 1 part of the new Construction Act.

Approximately 45 people attended the session which was held in the headquarters of the conflict resolution services firm ADR Chambers.

But it wasn't just the high number of people that is indicative of the interest in the adjudication process, says Jason Stitt, a Toronto-based instructor, facilitator, mediator, trainer, and coach with the Stitt Feld Handy Group, a division of ADR Chambers.



Jason Stitt

'While ODACC "drew inspiration" from other adjudication systems in countries such as the United Kingdom, the program content is new,'

Jason Stitt
Stitt Feld Handy Group

"They (the participants) were very excited about adjudication and were asking a lot of questions" says Stitt, the program instructor and facilitator of the construction adjudication and Ontario Dispute Adjudication for Construction Contracts (ODACC) orientation program.

A cross-section of industry representatives, ranging from architects to engineers, quality surveyors and contractors took part in the training. Some were from out of province and there even a few from Ireland and the United Kingdom, he says.

Adjudication is intended to provide real-time dispute resolution on construction disputes and to facilitate that

process the provincial government selected ADR Chambers as the authorized nominating authority.

ODACC is the authority responsible for administering and overseeing the adjudication of construction disputes in Ontario.

It's a mandate which includes creating a registry of ODACC adjudicators, writing and conducting the training, and developing a code of conduct among other objectives.

"We (ADR Chambers) got the contract in July," says Stitt, noting that necessitated setting up ODACC, creating the training program, and writing the code of conduct in an

almost parallel endeavour. Some preliminary planning had commenced as part of preparing the bid.

While ODACC "drew inspiration" from other adjudication systems in countries such as the United Kingdom, the program content is new, says Stitt.

Divided into two components, an online training module and a subsequent two-day classroom session, the training must be completed before potential candidates can formally apply to become adjudicators, he points out.

Depending on a person's schedule and knowledge of the Construction Act, the online training takes two to three hours to complete and includes a video featuring a construction lawyer and a construction lien master.

As for the in-person training, it covers topics such as an overview of the adjudication process, the role of the adjudicator, and preparing 'determinations' — which is the adjudicator's written award.

"But we were not always standing always at the front of the room lecturing," says Stitt, referring to himself and fellow instructor, Stitt Feld Handy Group vice-president Eleanor Witmore.

At the September session the two instructors often divided the attendees into smaller groups to discuss and debate different scenarios, followed by a return to the large class format where each group providing an overview of what was discussed.

As part of the training, the participants got to critique deliberately poorly written 'bad' deliberations, as well as

assessing the 'characters' in a number of fictional case studies, he says.

One person who took the training and has now been registered to be an adjudicator is former Vanbots Construction president and Bird Construction executive Matt Ainley.

'The implementation of the system will actually be the catalyst for many owners and contractors to sit down and talk over their differences,'

Matt Ainley
Consultant & Senior Construction Executive

"I found it (the training) very interesting," says Ainley, who had previously served on the attorney general's lien reform act Committee, representing the construction industry.

Now retired, he believes the implementation of the system will actually be the catalyst for many owners and contractors "to sit down and talk over their differences".

Not everyone who participated in the September session actually intends to become an adjudicator.

Some attendees were motivated simply by a desire to broaden their knowledge of the issues affecting the construction industry, says ODACC project manager Carina Reider.

"This (adjudication) is something the construction industry has been waiting for."

To be certified as adjudicator, potential candidates must submit a resume and a reference, completed a number of evaluation questions designed to judge their understanding of the training, plus have a number of industry qualifications including 10 years' experience in the industry and meet other criteria, says Reider.

Since the September sessions, ODAAC conducted two more "fully booked" ones in November in Toronto and one in Ottawa.

Another one is scheduled for February, she says.

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LIUNA Local 183 to break ground on \$8M tunnel rescue training centre

IAN HARVEY
CORRESPONDENT

With the 60th anniversary of the Hoggs Hollow tunnel disaster approaching, the biggest construction union local in North America will open an \$8 million tunnel rescue training centre in Vaughan, Ont.

The tragedy of March 17, 1960 is forever inscribed in construction trade union history. Five Italian-born workers were poisoned by carbon monoxide and drowned while digging a watermain tunnel under the Don River.

Mourned and remembered today, they did not die in vain. Their fate ignited the then-nascent construction trade union movement and brought wholesale changes to labour laws along with a Royal Commission.

Today's workplace safety laws were born from their deaths and so too, ultimately, was Local 183 of the Labourers' International Union of North America (LIUNA).

Coincidentally, the local expects to break ground this month (November) on an \$8 million tunnel training rescue centre at its property in Vaughan, north of Toronto.

"It's been a long time planning and working

with the city of Vaughan because this kind of thing doesn't really fit into the building (code) and fire code," says Sandro Pinto, the training centre's executive director. "We expect to get shovels in the ground and to open it sometime in late summer 2020."

LIUNA Local 183 has undertaken tunnel rescue training for 25 years, he says, and this new facility will be a step up from that.

"Right now, we send two people to sites to refresh the designated tunnel rescue people there every month," Pinto says. "Depending on what projects are ongoing, there are 10 to 12 sites we have to get to."

"The terrible tragedy was a call for action and more voices started to shout out,"

John Stefanini
Former LIUNA Local 183
business manager



TORONTO POLICE SERVICES

The Hoggs Hollow tragedy tunnel, when emergency personnel turned off an air compressor to stop feeding flames in the tunnel, silt and water then filled it, sealing the fate of the five men trapped inside.

With some 700 to 1,000 members designated as tunnel rescue qualified, the team processes between 19,000 and 22,000 seats (people in seats at the course) each year all over Ontario.

The trainers go over procedures and refresh the training much as any type of training though it's aimed at those who have already achieved their tunnel rescue tickets and are so designated on that job.

The Langstaff Road and Huntington Road facility will house an 8,000-square-foot office space with classrooms and other training facilities and be home to a tunnel simulation.

That tunnel will be accessed via a 33-foot diameter vertical shaft which drops 25 feet to a concrete tunnel extending 100 feet into the property via an open cut.

It will be equipped with air packs and assorted rescue equipment as would any tunnel site. It will also have various ropes and a gantry crane to simulate rescues, Pinto says.

In addition to LIUNA Local 183 members, he says, other groups have expressed interest in using the facility, including fire departments and EMS services.

The construction is being financed wholly by the local with no grants or funding from the province or federal government.

"We'd love to get some money of course, but this is being funded by our members, for our members," says Pinto.

The construction at Vaughan is the first phase of a plan to move LIUNA 183's training and head office to that location, he adds.

The perils of working underground are manifest but they are much safer now than they were in the 1960s when Italian immigrants Pasquale Allegrizza, Giovanni Carrioglio, Giovanni Fusillo, and brothers Alessandro and Guido Mantella died.

As one of LIUNA 183's founding forces and later, business manager, John Stefanini notes in his recently published book, *More Than We Bargained For: An untold story of exploitation, redemption, and the men who built a worker's empire* (Sutherland House 2019), the deaths were the tipping point.

"Meetings at the Brandon Hall Group (where the construction workers first started to gather on Brandon Avenue) were already crowded with Italian immigrants tired of being exploited and working in despicable conditions," he writes. "Not long after I arrived and the Brandon Hall Group started gaining traction, an unspeakable tragedy occurred. It would change everything."

"The crew were working at a Hogg's Hollow watermain tunnel in the Yonge Street and York Mills area. The conditions were cramped and dangerous. They had no helmets, or flashlights. Because they were working under the Don River, there was always the danger of flooding.

"The ground was soft and silt-like so there was always an air compressor running to maintain a positive pressure in the six-foot tunnel and push the water back down. The downside was that all of that air created an oxygen-rich environment and when a cutting torch ignited the rubber insulation on an electrical cable a fire spread quickly and with ferocious intensity. Soon the tunnel filled with toxic smoke."

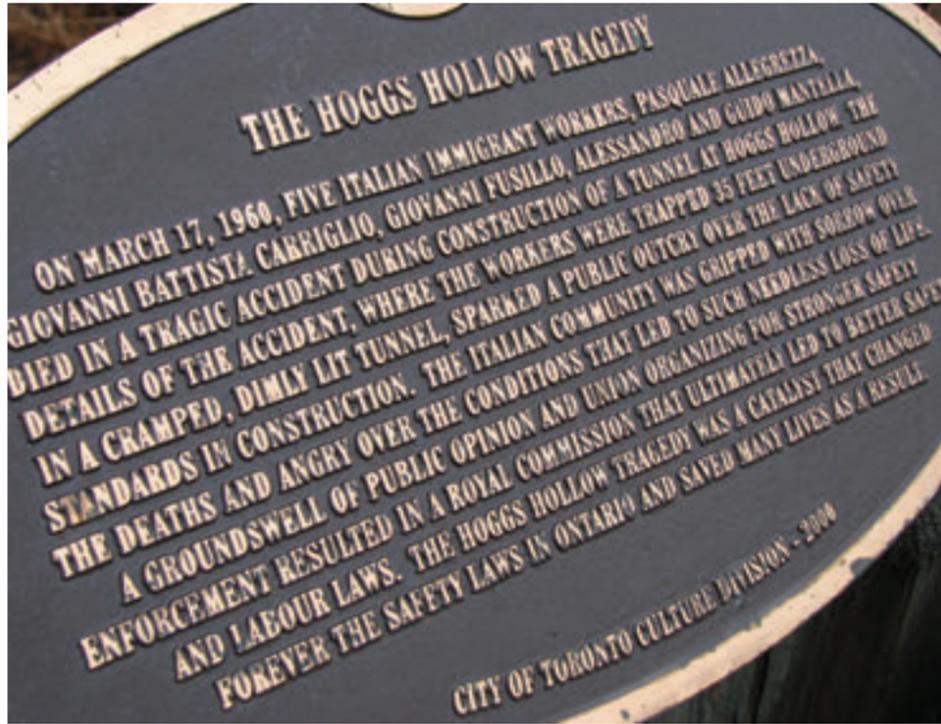
As Stefanini notes, the Italian community reacted at first with sorrow "but it quickly turned to rage. Anger at the injustice and poor treatment of workers had been growing for some time and now it spilled over. Every day many immigrant workers risked their lives in horrendous conditions and sometimes all they had to show for it after a month's work was a worthless piece of paper because the contractor's cheque had bounced. The terrible tragedy was a call for action and more voices started to shout out."

Stories in the newspapers pulled no punches. "Hell Hole" blared the Toronto Telegram in massive black type on the front page March 18, 1960. "Slave Immigrants" it raged again in large type on the front, a week later, reflecting that the furious reaction of the public was not abating as the bodies were pulled to the surface. Frank Dreia's reporting noted immigrant workers were "treated like animals" A flurry of stories followed.

"When the coroner's report noted how safety rules had been brushed aside and that management had ignored the risk to the lives of workers, the clamour for change rose higher," Stefanini states in his book. "It had come to light that the Hogg's Hollow tunnel was a disaster in the making. A foreman who voiced safety concerns was fired. Another quit, fearing a collapse because the tunnel was improperly built and there were no fire extinguishers."

The Ontario Government was forced to act. Then premier Leslie Frost launched the McAndrew Royal Commission on Industrial Safety which found that despite the existence of safety legislation, "accident prevention associations are not functioning...as contemplated by the Act and...are isolated islands of autonomy having no responsibility to report to or even advise the Workmen's Compensation Board (now known as the Workplace Safety and Insurance Board)."

Immediately things changed, Stefanini notes. "(Brandon Hall leader) Charlie Irvine's meetings started to fill up with more and more workers who were sick and tired of their working conditions and ready to fight for their rights.



FILE PHOTO

With the 60th anniversary of the Hoggs Hollow tragedy approaching in 2020, LIUNA Local 183 has broken ground on a tunnel rescue training centre in Vaughan, Ont.

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